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PEDIATRICS

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New York

GEORGE CARPENTER, M.D.
LONDON

CONTENTS

A Case of Syphilitic Pseudo-paralysis — JACOB SOBEL, M.D.

The Antitoxin Treatment of Diphtheria, with a Plea for Rational Dosage in Treatment and in Immunizing (Concluded.) — B. FRANKLIN ROYER, M.D.

Late Rickets (Concluded) — R. W. MARSDEN, M.D.

Duke's Disease — BENJ. EDSON, M.D.

Society Proceedings

New York Academy of Medicine, Section on Pediatrics—Chicago Pediatric Society—Philadelphia Pediatric Society—New York Academy of Medicine, Section on Orthopedic Surgery.

Editorial

Ill-Nourished Children: Another Phase of the Question—Osteopathy on the Stage.

Abstracts

Giant Growth of the New Born—Childbirth in Cases of Giant Growth—Cessation of Epilepsy Consequent on Removal of Adenoids—Cerebellar Abscess: Operation: Recovery—Epitheloma of the Face in a Young Child—Pneumococcus Arthritis in Infancy—Urotropine in Scarlet Fever—Pneumococcic Membranous Bronchitis in a Child—Incontinence of Feces in Children—Measles without Characteristic Eruption—Tobacco Deafness—Recurrent Herpes Zoster: Zoster Erythematosus and Zoster Vegetans—Scarlatinal Infection—Ear Diseases Following Acute Infections—Cerebrospinal Fever—Value of Medicated Clay Poultices.

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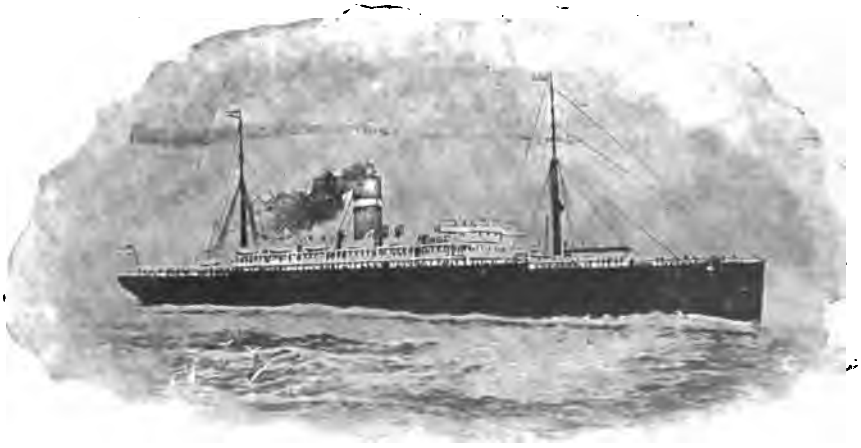

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PEDIATRICS

Vol. XVII JULY, 1905 No. 7

ORIGINAL ARTICLES

A CASE OF SYPHILITIC PSEUDOPARALYSIS[1]

BY JACOB SOBEL, M.D.,
OF NEW YORK.

The osseous changes common to hereditary syphilis are most frequently manifested in the form of a diaphyso-epiphyseal lesion, that is, an osteochondritis of the femur, humerus, tibia, radius or ulna. This manifestation, when associated with other signs of congenital lues admits, as a rule, of a ready diagnosis, but when present as an initial symptom, so to say, it renders a diagnosis not only very difficult, but at times impossible, for some period. The following is a case in point:

Case.—Helen Z., aged three weeks, bottle-fed since birth, was brought to my dispensary service at Lebanon Hospital on December 1, 1904, with a history that for the past four days the child does not seem able to move its left arm. The child was apparently well until four days ago, when some friends who were visiting the house played with it and pulled the arm, as the guardian thought. The patient was the first-born. The labor was normal and in-so-far as the guardian knew, the parents were healthy. At the first visit both my associate and myself paid particular attention to the examination of the left upper extremity, examining carefully the clavicle, shoulder, elbow, wrist and hand; we found no subluxation, no fracture, no dislocation, no swelling of any kind. There was, however, a drop-wrist with its characteristic deformity and disability. Tickling of the palm caused slight movement of the fingers. No callus pressing on the musculo-spinal nerve could be detected, nor was there pain on pressure over any of the joints. In addition to the drop-wrist there was a slight inward rotation of the arm suggesting the upper arm type of birth paralysis, but the fact that the condition had appeared during the third week of life, and that there was no atrophy, ruled out Erb's paralysis.

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[1] Presented at the Pediatric Section, Academy of Medicine, Feb. 16, 1905.

A physical examination of the patient at this time was absolutely negative, not even a palpable liver or spleen. A tentative diagnosis of traumatic neuritis was then made, and gentle massage with cocoa butter and rest were ordered. The guardian returned on two subsequent visits, two or three days apart, to report some improvement; on both of the latter visits, examination of the extremity and especially of the wrist-joint revealed nothing except some slight pain on passive movement. All other joints were free and painless and the gums were normal. There were no evidences of rickets. On December 10 there was detected a distinct crepitation of the lower end of the radius and ulna, at the junction of the epiphysis and diaphysis—an epiphyseal separation; the case was then transferred to the surgical service. One week later the face was partially covered with a papulopustular eruption, with adherent crusts here and there, especially around the mouth; the crusts resembled those of impetigo contagiosa but were easily differentiated by their sition upon a copper-hued base; the body showed a maculopapular ham-colored eruption and the skin of the soles and palms was desquamating and thickened; there were decided coryza, snuffles, mouth breathing, fissured lips, in a word, the clinical picture of congenital lues. The spleen and liver at this time were distinctly palpable. Then the diagnosis of the original condition became clear of course and the cause for the pseudoparalysis became very evident. Subsequently distinct anal condylomata made their appearance. The forearm was immobilized with lateral splints by Dr. Reiss, the surgeon in charge, and the lues was treated in the dermatological service of Dr. Gottheil, by the administration of calomel gr. 1/20 to 1/10 three times daily and by the twice daily application to the umbilical region of a pea-sized piece of white precipate ointment covered with a flannel abdominal band.

In three and a half weeks no false point of motion or crepitation was detected and in four and a half weeks the surgical aspect of the case was closed. Under the aforementioned anti-specific treatment rapid improvement was made.

It seems to me that the sequence of events in this case—pseudoparalysis (epiphysitis), epiphyseal separation, and lastly the cutaneous outbreak, is interesting and instructive and warns us to be on our guard in diagnosticating mono-articular involvements in young children. When brought face to face with a similar case in the future, after excluding trauma, fracture, sepsis, perhaps infantile scurvy, it may be well to turn our thoughts to the possibility of osteochondritis epiphysaria luetica neonatorum.

THE ANTITOXIN TREATMENT OF DIPHTHERIA, WITH A PLEA FOR RATIONAL DOSAGE IN TREATMENT AND IN IMMUNIZING

BY B. FRANKLIN ROYER, M.D.
OF PHILADELPHIA.

CHIEF RESIDENT PHYSICIAN, MUNICIPAL HOSPITAL, PHILADELPHIA

(*Continued from June No., page* 358)

All the preceding tables seem to show that antitoxin has reduced the mortality very greatly in all hospitals.

Let us now take up the question of dosage.

From a paper recently read by Dr. Louis Fisher, of New York City (some of you will remember that Dr. Fisher was the first man in the United States to publish a clinical report of the use of antitoxin), I find that the dose he teaches the house officers of the Willard Parker Hospital is very much like that dose in use at the present time in our Municipal Hospital. He feels as we feel, that the proper dose of antitoxin must be somewhat empirical, that it must not be less than will "limit the pseudomembrane, subdue the fever, and check the progress of the disease."

In an abstract from this paper, read before the New York Academy of Medicine, November 10, 1904, published in *Archives of Pediatrics* for December, 1904, I culled the following mortality statistics from the Willard Parker Hospital:

RÉSUMÉ OF CASES REPORTED FROM THE WILLARD PARKER HOSPITAL DURING JULY, AUGUST AND SEPTEMBER, 1903.

	Number.	Died.	Mortality per cent	Recovery.
Tonsillar and pharyngeal	292	34	11.64	38.36
Tube cases	69	42	60.87	39.13

RÉSUMÉ OF CASES REPORTED FROM THE WILLARD PARKER HOSPITAL DURING JULY, AUGUST, SEPTEMBER AND OCTOBER, 1904.

	Number.	Died.	Mortality per cent.	Recovery.
Tonsillar and pharyngeal	253	25	9.84	90.16
Tube cases	115	41	35.65	64.35

"The average dose of antitoxin administered during 1903 was for July 1,500, for August 1,700, and for September 2,500 units; the average dose of antitoxin administered during 1904 was for July 2,500, for August, 5,000, and for September, between 5,000 and 10,000 units. As a result, it has shown about 21 per cent. mortality where the dose was small, against a mortality of 14 per cent. where the larger doses were used."

"For a mild case, from 500 to 5,000 units was used. If there was a large exudate on the tonsils and pharynx, from 5,000 to 10,000 should be given on the first day, and repeated within twelve hours if no improvement is shown. In cases of laryngeal diphtheria, with stenosis, the initial dose should be 10,000 units. He had never seen any case that suffered any ill effect from large doses."

In the discussion which followed the reading of Dr. Fisher's paper, Dr. Park, whom some have learned to look upon as one advocating small doses of antitoxin, had this to say of doses: "In mild cases either early or late, involving tonsils or pharnyx, he uses 2,000 units; in severe early cases 4,000 units; in ordinary laryngeal cases 5,000; in malignant severe cases, tonsillar, pharyngeal, or nasal, 10,000 units, and repeat this dose at the end of ten or twelve hours until the patient is distinctly better."

Dr. McCollom, of the South Department, Boston City Hospital, has long advocated large doses in severe cases.

The following doses are in use at the present time in my wards at the Municipal Hospital:

Purely tonsillar exudate (single), 2,500 units; purely tonsillar exudate (double), 5,000 units. Tonsillar exudate with involvement of pillars and uvula or pharynx, 7,500 to 10,000 units; nasal and any other part involved, 7,500 to 10,000 units; laryngeal, 7,500 to 10,000 units.

Repeat the dose in each case in from twelve to twenty-four hours, depending upon the severity of the disease and the signs of improvement, as shown by general condition and disappearance of exudate. If the exudate is rapidly separating do not give a second dose. Where a great amount of exudate remains give a daily dose of from 5,000 to 7,500 units until the greater portion of it has disappeared. With patients admitted after the seventh day of disease give 2,500 units only. Do not repeat. When patients have remained in the ward six weeks give immunizing dose of 2,500 units.

We give very large doses in naso-pharyngeal diphtheria because we know with pseudomembrane present in this locality toxicity is greater than with it in any other. There is a good anatomic and histologic reason for this increased toxicity. The basement layer of the mucous membrane lining the nasopharynx covering the pharyngeal tonsil and back portion of the uvula is a complete network of lymph channels, ready to open and carry away any absorbable material. In the faucial tonsils and low on the pharynx the lymph channels are less numerous and the fibrous tissue is more abundant, hence less absorption. Then, too, in the nasopharynx you quickly get plugging with damming back into this cavity toxins that from the tonsils might be expectorated. Exudate serum and secretion are firmly held in the naso-pharynx. We give large doses in laryngeal diphtheria because we not only want to neutralize the toxins, but because we must limit the extension of pseudomembrane. We do not give large doses after the seventh day of the disease, because the damage done is irreparable.

Having proven the value of antitoxin, and having shown the reduction in deaths from diphtheria in large cities and in large hospitals, and having shown the tendency to give larger doses, with an argument in favor of doses determined from amount of exudate and location of exudate, we now take up the most vital part, viz., when to give antitoxin. Before deciding when to give it, let us take up the statistics of the Brook Hospital, London, the collected statistics from Chicago, and our own statistics for 1904.

STATISTICS OF THE BROOK HOSPITAL, LONDON.

JOHN MACCOMBIE, Medical Superintendent.

Antitoxin Treatment.—Of 716 completed cases, 610 were treated with antitoxin. The following table shows the result of the antitoxin treatment, with especial reference to the day of disease on which the treatment began:

	Day of disease on which treatment began.												
	1st.		2d.		3d		4th.		5th.		Total.		
Ages.	Deaths.	Cases.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Percentage mortality.
Under 1	0	0	5	0	3	0	2	2	2	1	9	3	33.3
1 to 2	4	0	2	0	10	4	9	2	12	4	40	10	25.0
2 to 3	7	0	11	0	16	5	14	4	21	5	69	14	20.2
3 to 4	2	0	20	2	19	6	7	0	22	2	70	10	14.2
4 to 5	0	0	16	2	21	3	14	2	27	6	78	13	16.6
5 to 10.......	5	0	65	2	66	12	45	6	64	9	245	29	11.8
10 to 15	2	0	12	0	23	0	18	2	13	2	68	4	5.8
15 to 20	0	0	7	0	7	0	1	0	2	0	17	0	0.0
20 and upwards	0	0	3	0	5	0	2	0	4	0	14	0	0.0
Total	20	0	141	6	170	30	112	18	167	29	610	83	13.6
Percentage mortality	0.0		4.2		17.6		16.07		17.3		13.6		

"For the purpose of comparison I give the results of the antitoxin treatment here for the seven years, 1897 to 1903, inclusive (the figures in brackets are to total number of cases):

	1897	1898	1899	1900	1901	1902	1903
Of cases (187) treated on 1st day of disease the mortality per cent. was..	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Of cases (1,186) treated on 2d day, mirtality per cent. was..............	5.4	5.0	3.8	3.6	4.1	4.6	4.2
Of cases (1,233) treated on 3d day, mortality per cent. was	11.5	14.3	12.2	6.7	11.9	10.5	17.6
Of cases (963) treated on 4th day, mortality per cent. was	19.0	18.1	20.0	14.9	12.4	19.8	16.07
Of cases (1,260 treated on 5th day, and after	21.0	22.5	20.4	21.2	16.6	19.4	17.3

"During the past seven years the total number of cases of diphtheria treated with antitoxin in this hospital has been 4,812. Not a single death has occurred among the cases that came under treatment on the first day of the disease, and among those that came under treatment on the second day the mortality has not exceeded 5.4 per cent., while among those that came under treatment on the third day and later the mortality is much higher. These facts show how eminently curable a disease diphtheria is if treated with antitoxin early enough, and how large a number of lives would be saved if all the cases would be put under antitoxin treatment on the first or second day of the disease."

"In Chicago, between October 5, 1895—date of first case treated—and December 31, 1903, the antitoxin administrators of the department treated 7,435 cases of bacterially verified diphtheria, of which number 479 died—a mortality rate of 6.44 per cent. The average mortality without antitoxin still remains about 35 per cent.

"That the value of antitoxin depends upon its early administration is shown by the following:

"Of the total 7,435 cases, 586 were treated on the first day of the disease, with 2 deaths—mortality rate, 0.34 per cent. Of 1,913 treated on the second day, 28 died—mortality rate 1.46 per cent. Of 2,624 treated on the third day, 85 died—mortality rate, 3.24 per cent. Of 1,374 treated on the fourth day, 148 died—mortality rate, 10.8 per cent. Of 936 first treated later than the fourth day, 216 died—mortality rate, 23.1 per cent.

"There were included in the total 7,435 cases, 608 intubated laryngeal cases, of whom 508 recovered; mortality rate of intubated cases, 16.54 per cent. The former mortality of this class of cases—intubated are tracheotomized—was about 85 per cent."

MUNICIPAL HOSPITAL REPORT FOR 1904.

Day of disease and results.

Day of disease.	Admitted.	Died.	Per cent.
1st day	43	0	00
2d day	220	9	4.09
3d day	153	21	13.72
4th day	114	20	17.54
5th day	61	9	14.75
6th day and over	121	18	14.87
Total	712	77	10.81

Measles, mixed cases and moribund cases dying in 24 hours omitted.

In a recent letter from Dr. John H. McCollom, South Department Boston City Hospital, he makes the following statement:

"Experience has taught me that the golden time for administering antitoxin is during the first twenty-four hours of an attack of diphtheria. I have yet to see a patient die of diphtheria who had antitoxin in sufficiently large doses within twenty-four hours of the commencement of the attack.

"Since the South Department was opened we have had 180 cases of diphtheria among the doctors and nurses, and not a single death, because each patient received a large dose of antitoxin at the outset. I go so far as to say that when a throat has a suspicious appearance it is better to give antitoxin at once and not wait for the result of the culture. Nobody believes more thoroughly than I do in bacteriologic examinations of the throat. Nobody has worked any harder on that line than I have. Nobody has any wider experience than I have. Yet I cannot help feeling that in a given case of diphtheria much valuable time is lost by waiting for the result of the culture.

"I think it is true that patients are coming to the South Department earlier than they did a few years ago. It frequently happens that one member of the family will have an attack of diphtheria and will be treated at home for four or five days, sometimes with antitoxin and sometimes without, and then sent to the hospital as a last resort. The patient is seriously ill and frequently succumbs to the disease. As soon as the other members of the family show any symptoms of sore throat they are at once sent to the hospital, have antitoxin and recover."

The time to give it is when you have clinical evidence of diphtheria. Do not await a culture report; do not wait to see of you will have severe diphtheria. Give it at once.

We very frequently have patients sent to us three, four, or five days in the disease treated by a physician for two or three days and no antitoxin given. I believe that you would find it exceedingly. difficult to defend yourself in a court of law proceeding brought against you for neglecting to give such a life-saving agent until the time had passed when it would positively cure your patient.

These statistics in day of the disease require no explanation and no comment. If antitoxin is given early and in an appropriate dose the loss of life will be practically *nil.* If delayed several days the mortality will be very great.

As an immunizing agent, antitoxin is too little used by the profession. It is very common for us to receive at the hospital a patient very ill with diphtheria, and in from two to three days receive a second or third case from the same home. In fact, in a recent experience a child died at home the fifth day of disease without antitoxin, and in three days we received the mother and six children. Not one of these cases should have contracted the disease. All of that suffering and distress would have been saved had the simple, harmless precaution of immunizing those exposed been practiced.

We very often have mothers accompany sick babies to our acute wards and live there. We many times have had sick mothers bring with them nursing babes not suffering with the disease. No precaution is taken and no treatment given beyond immunizing them well. We do not expect them to get the disease. We practically assure them that they cannot get diphtheria if immunized.

Some of you may feel that you will impose upon your clientele too great an expense by this liberal use of serum. I grant you this may be true in certain classes. The Bureau of Health stands ready to supply your patients with antitoxin when they cannot afford to buy it in the market, and should you not care to give it, the Bureau of Health stands ready to send a medical inspector to the home to give it in curative or in immunizing doses as you may direct.

There is no excuse at the present time for neglecting to immunize those exposed to diphtheria. I question if you could defend yourself comfortably in a legal action if you were called upon to prove that you had used "reasonable care" when you had neglected to immunize a family, if those exposed subsequently developed the disease, and the family then proceeded against you.

There seems to be a rational method of dosage even in immunizing. I would recommend for the household 500 units for those not directly exposed, 1,000 units for those directly exposed, and 1.500 units if any sign of illness were present.

I have not yet seen a case of diphtheria develop where a patient had been immunized at the time of exposure or soon after.

In conclusion, I would remind you that in New York City (Manhattan and the Bronx), Brooklyn, Chicago, and Philadelphia, 18,121 lives have been saved through the introduction of antitoxin as a curative and prophylactic agent in the treatment of diphtheria.

The death rate in diphtheria hospitals has been greatly reduced and in many instances cut in half by the introduction of serum therapy. We would plead for a dose of antitoxin in proportion to the amount of exudate and location of the exudate. We would urge a large dose of antitoxin in nasal, nasopharyngeal, and laryngeal diphtheria. We would plead for the general use of antitoxin earlier in the disease. We would plead for more general use of antitoxin as a prophylactic measure in a dose proportionate to the amount of exposure and time of exposure.

LATE RICKETS

By R. W. Marsden, M.D., M.R.C.P., Hon Physician,
Ancoats Hospital, etc.

(*Continued from June No., page* 370)

Macewen[16] gives an account of a clerk who was apparently strong and healthy till fifteen years of age, when he had a severe attack of scarlet fever, which apparently initiated a series of symptoms culminating in marked manifestations of rickets. There is no further statement from which suggestive evidence for or against rickets in infancy can be obtained, and it may be that, from the profound change produced by the severe attack of scarlet fever, this is one of the very rare instances where the most detailed examination would fail to have revealed indications of rickets in infancy; but this point must remain inconclusive.

A consideration of the above cases is, to say the least, suggestive of the fact that in most instances of so-called late rickets there has throughout life been some interference with the normal growth of bone, and calls forth the question whether the evident arrest of development seen in several of the cases, even though unaccompanied by an epiphysial enlargement or bony deformity, may not have been of a rachitic nature. Can it be that the rachitic process is in a sense capable of becoming quiescent: ossification and growth being deficient, but the process insufficiently active to produce the characteristic morphological changes until a further factor is added, e.g., puberty, violent exercise, a severe illness, etc.? It is possible that the use of the Röntgen rays in future cases of defective development may throw some light upon this point. Late rickets being then of an essentially identical nature to infantile rickets, it is evident, as suggested by Clutton, that there may be three possible modes of origin. Thus it may be that it occurs for the first time at the later period of life in an individual previously quite healthy. Secondly, it may be that an attack of rickets in infancy does not completely subside, so that, from defective treatment or superadded cause, a relapse occurs, and the process again becomes active. Thirdly, it is possible that the attack of infantile rickets may completely be recovered from, and after a variable period of normal growth a recurrence takes place. It is evident that, in the present state of our knowledge, cases belonging to type (2) will seldom enter into question; and most writers would agree with Clutton, even though they did not limit, like him, the age of the patients to a definite number of years, that a continuous and clear connection with infantile rickets excludes inclusion in the late variety.

It would seem that Ollier[17] was the first, in 1861, to attribute many of the bony deformities of later childhood and adolescence to rickets, which had previously been considered to be due to osteomalacia. He spoke of a primary form, agreeing with Clutton's first type, and of a secondary form, identical with the latter's third type. In addition, he noted the rarity of the primary form, and pointed out the difficulty of making the diagnosis, on account of the frequent impossibility of proving the absence of rickets in infancy.

I have already dealt with this question; and though not denying the occurrence of the primary form, have suggested that it is still rarer than is usually believed, since, on account of a less limited view of the manifestations requisite for the suspicion, if not the diagnosis, of rickets, I consider it possible that even such apparently typical cases of the primary form as those reported by Clutton, Roos, and myself may in future be shown, by an extended observation through life, with the assistance of the Röntgen rays, to have exhibited previous signs of rachitic changes at the growing ends of the bones.

Deydier[18], a pupil of Ollier, subdivides the latter's classification into a general form, which is rare, and into a local form, in which only one, or a few, regions of the bony skeleton are affected. The local form, he says, is much commoner, and includes the cases of so-called idiopathic genu valgum and varum, as well as scoliosis, which develop in adolescence.

Deydier made the above classification in 1895. Clutton, writing nine years previously, excluded from the heading of late rickets those cases of bending of the bones about puberty or later, which occur without epiphysial enlargement. Such cases he considers to be "due to a want of proper consolidation of the bones in proportion to the increasing weight of the body." He would admit cases, such as the five described by Lucas[19], where, in youths from twelve to seventeen years of age, scoliosis, or genu valgum, was in each instance accompanied by enlargement at the epiphysial ends of one or more of the long bones of the limbs. I have previously stated that, in my opinion, epiphysial enlargement, though of the greatest importance, is not a sufficiently reliable test of the presence or absence of rickets; and this view is strongly supported, if not verified, by the evidence which we possess on the point under consideration.

Mikulicz[20], in 1879, after an extended observation conducted on the lower end of the femur in normal and abnormal cases, found that the whole breadth of the epiphysial cartilage in the frontal section of a normal femur during the period of growth is 1 to 2 mm. On the other hand, in a youth with slight genu valgum, he found that there was a considerable broadening of the epiphysial cartilage. The enlargement especially affected the columnar layer of growing cells, which had a breadth of 2 to 3 mm., whereas in the normal condition it was only one-half mm. Moreover, he states that "the macroscopical and microscopical findings agree so remarkably with the changes which one recognizes as characteristic of rickets, that here we can rightly say there is present a rachitic broadening of the epiphysial cartilage."

Thiersch[21] also reports the case of a girl sixteen years of age of rachitic build, with genu valgum, who died with evidence of advanced contracted kidneys, whilst "the epiphysial cartilage showed the irregular growth which is characteristic (*zukommen*) of rickets."

Others writers, in addition to genu valgum, have included cases of scoliosis and flat foot. Tripier[22] having stated that rickets appears more especially at the times when the normal growth of the skeleton is most rapid, finds that genu valgum is most likely to arise at various ages at which the "height of the conjugating cartilage of the lower extremity of the femur is increased," which he considers, I think erroneously, tantamount to saying that growth in height is more active. He is fully aware "that some writer will object that this greater height of the conjugal cartilage is a rachitic lesion," but he considers that Broca has shown that more than an increase in height is necessary to characterize a rachitic alteration. I have been unable to find this communication by Broca.

Without entering any further into the bibliography of this subject, I think we may accept Macewen's[23] conclusions that osseous deformities of the lower extremities (knock-knees, bow-legs; and various femoral and tibial curves) originate in rickets, since—

(1) Their etiology is identical—some cause of severe and prolonged debility. (2) Rickets and these osseous deformities abound in the same individual. (3) The period of life during which these deformities occur is limited and is identical with the period during which rickets attacks the body—the period of growth. (4) Deformities which are physically identical with those above mentioned arise from rickets, and in the few cases examined the histological characters are the same.

Accepting Ollier's basis, then, for the classification of cases of late rickets, and supplementing Deydier's addition, we may recognize the following types:—(A) A general affection, which may be (1) primary or (2) secondary. (B) A local affection, which may be (1) primary or (2) secondary.

Late rickets being a rare disease, but of an essentially similar or identical nature to the common infantile form, it is natural to inquire whether its supervention throws any light upon the much disputed pathology of the rachitic process.

I think it may be safely asserted that rickets is a disease *sui generis;* that is to say, that it is a distinct entity, even though it exhibits, like other diseases, multifarious manifestations. On this account, therefore, it is only natural to expect that either it will always be caused by the same etiological factor, or, if many factors are concerned, that they will show a very close connection, to explain their similarity of action. A moment's reflection will show that the second suggestion offers the readiest solution of the difficulty, since by such means only can we hope to combine the numerous influences which have been proved to be concerned in the causation of rickets.

At the present time it is generally recognized that rickets is not simply a disease of the bones, but a general affection, of which the enlarged epiphysial ends, and bending of the shafts, etc., constitute the local, but more or less disseminated, indications.

Though, as stated by Sir William Jenner[24], "we see all degrees of enlargement of the ends of the ribs, and of the other long bones, from that where one might maintain the enlargement was only that proper to the child, to that in which the projections on the anterior wall of the thorax and the enlargement of the wrist would strike the most careless observer," and though, as Rokitansky[25] says, "sometimes it is more prominently marked in one portion of the skeleton, while the rest of the bones are but slightly affected," it may yet probably be safely asserted that a change in the formation of bone constitutes the most constant, the most marked, and the earliest manifestation of the rachitic process. In early cases this change is limited to the growing parts of the bone, and especially affects the ends which show the most active growth.

From what we know of the course and symptomatology of rickets, and of the physiological requirements of a growing tissure, we should expect any abnormality in the latter—excluding congenital, or hereditary, predispositions or alterations—to be dependent on some quantitative or qualitative change in the blood supply. We cannot readily imagine how, by any other means, these various parts of the skeleton could be simultaneously and similarly affected, and in a degree largely proportionate to the activity of the process of growth. On the other hand, we know that for growth an ample supply of nutrition is required, and that any interference with this supply—either in the introduction of an abnormal, irritative element, or in the deprivation of the proper quantity or relative amounts of the normal elements—will of necessity exercise its baneful influence on the process of growth.

It would seem to be superfluous to recapitulate the requirements for obtaining a satisfactory supply of nutrition. Carried out in detail, this would mean a recital of our knowledge of the physiology of digestion, assimilation, and metabolism, with excretion of waste materials; also of the physiology of respiration, and purification of the blood. In addition, we should have to consider the action of the various unhygienic conditions of life which may exert so powerful an influence on the system in general.

But though such a procedure is manifestly unnecessary, I think a brief review of some of the main requirements for healthy nutrition will be of the greatest service in assisting us to come to a conclusion as to the probable pathology of rickets.

It is a frequent simile to compare the body to a complicated engine, the fuel for its continued work being supplied by the food we eat. At the same time, such a comparison does not carry us very far, since in the human body the food is further required to enable constant repair to be undertaken, and during the period of growth to supply the materials from which such growth takes place.

So accustomed are we to accept this view of the process of nutrition, that there is a tendency to forget, or hold of slight moment, other influences which must exert a powerful action in the same direction.

It may be said that the ultimate object of digestion and assimilation is the production of a constitution of the blood in which the various elements composing the food will be brought together and delivered to the tissues in a form and quantity most suitable for use.

But if the soluble constituents of the blood are of such great importance, what is likely to be the influence of the factors concerned in the production and regeneration of the blood elements themselves? In this respect, however, the necessity for an abundant supply of fresh air and of sunlight, and the noxious influence of the factors which may be grouped together as unhygienic surroundings, will be admitted by all, and the very constancy of their action will even prepare us to accept the conclusion of Kassowitz[26], that these factors exert a most powerful influence on the production of rickets. The last-mentioned writer draws attention to the marked prevalence of rickets amongst the children of the poor as compared with those of the better classes, a difference which is one of the most remarkable appearances in the ascertained facts concerning the disease. He shows that it is not explainable by the differences in food supply, and believes that the essential cause is the difference in hygienic environment. Turning now more particularly to the food supply, we recognize that this must contain the following elements, namely, nitrogenous substances, especially various forms of albumin, fats, carbohydrates, salts, and water. In adults requiring food only for energy and repair, we know that a very great latitude in the relative amounts of these elements is permissible, compatible with health. It may be that in them the alimentary tract possesses considerable selective capacity, excreting without injury to the individual, many substances taken in in excess, or admitting them, after digestion, to store them away in the form of fat; or, again, to excrete them, with the consequent damage to the excretory organs, after a prolonged continuance.

In infants, however, the digestive powers are limited at first very materially. Casein and lact-albumin seem to be the only nitrogenous bodies suitable for digestion and absorption, and the relative proportions of these must not, apparently, exceed certain limits. Moreover, the ingestion of unsuitable forms of albumin, of insoluble carbohydrates (starches), of an excess of fats, may each and all be followed by digestive disturbances, which, in addition to the consequent loss of these elements from non-absorption, further drains the system by the vomiting, diarrhea, or other symptoms of gastro-enteritis which result.

How frequently one meets with infants fed on diluted cow's milk, which must of necessity be deficient in fats, or of milk combined with an excess of soluble or insoluble carbohydrates by addition of the various patent foods. Only quite recently I saw an extremely marasmic infant, two months old, which, under medical "direction," had for some weeks past been fed solely on a well-known patent food, largely dissolved in water, the insoluble particles being still in suspension. Can one, then, wonder at the gross ignorance of the requirements for infant feeding exhibited by the laity?

There is, however, no need to dwell on this subject, to which a great amount of attention has been, and is being, given by the various medical journals.

It is, however, desirable to draw attention the fact that, as shown by Rotch, human milk—from poverty, from compliance with the claims of society rather than the infant, or from excitement or worry—may show a deficiency of one element (e.g. fat), or an excess of another (albumin), which not only leads to gastro-enteritis, but to the absence in the blood, in their proper proportion, of the products of assimilation so necessary for healthy growth and development.

Given, then, a series of individuals of various ages, living under similar hygienic conditions, we can readily understand how it is that rickets, which we may more fitly describe as a disease of growth rather than a disease of nutrition (it is evident that the bony changes can only occur so long as growth is taking place), should be pre-eminently met with at a time when the powers of digestion and assimilation are limited. After this stormy period, owing to increased power conferred by nature, the majority of individuals are able to obtain from the food ingested a sufficient supply of the various elements to permit of the process of growth taking place in a more natural manner. If, however, during these later periods, the hygienic environment be bad; if the child suffers from some acute or chronic ailment which greatly diminishes its potential powers for recuperation, or interferes with its subsequent nutrition; or further, if, as in my own case, the child shows idiosyncrasies which can hardly be compatible with normal nutrition—we need hardly be surprised in such cases at the occasional supervention of a condition which is more usually limited in its appearance to the earlier years of life. It is unfortunate that, in almost all the cases as yet reported, the positive and negative evidence upon the points I have mentioned is insufficiently dealt with to allow one to estimate approximately the part played by each.

It appears to me, therefore, that the various recognized etiological factors in the production of rickets may be grouped under one head as regards their effect on the blood. We may say that every factor interfering with the presence in the blood of the elements of nutrition in their proper proportion; all unhygienic conditions which diminish the oxygenation and regeneration of the blood, or prevent the formed elements from adequately performing their functions; and, finally, any hereditary or acquired disease capable of adversely influencing the powers of the tissues in general for growth and repair—may act as factors in the production of rickets. We shall thus be in a position to add a further reason for such a well-established but apparently inexplicable fact as the rarity of this disease in warm climates. I am aware that Kassowitz accounts for this last occurrence by the greater amount of time spent in the open air in warm climates; and it may be that this is the most important factor, as witnessed by the curative effects of a stay in the country in children already affected by the disease. Still it is possible that the severer climatic conditions in colder countries may constitute a greater drain on the infant's potential power, and add their quota to the already heavy burden, which finally culminates in the manifestation of rickets.

But even though a primâ facie case for the above view may be surmised, from the assistance which it renders in explaining the action of the multifarious factors which have been proved to be concerned in the production of rickets, it may be argued that it lacks direct proof. Many writers believe that the essential agent is of a toxic nature. Thus Kassowitz expresses the opinion that unhygienic conditions act by absorption into the system of noxious gases, and others invoke the action of lactic acid, or toxins absorbed from the alimentary canal.

It appears to me that, in the first place, it would be remarkable if different toxins, as the result of their specific action, could produce identical results. On the other hand, as with the virus of syphilis, we must admit their ability to interfere with the normal powers for growth, reproduction, and performance of function of the different active cells. It is, however, impossible to include all the factors under the positive influence of a toxin, and we must in some cases fall back on the negative influence of an absence of normal conditions.

What evidence have we in support of this view? Rindfleisch[27], after describing the morbid anatomy and histology of the changes of the bones in rickets, says "that it seems far from unlikely, and quite in agreement with the general laws of nutrition and vascularization, that the whole of this antecedent development of medullary spaces is really an effort at vascularization, intended to supply both the proliferated and the non-proliferated portion of the cartilage with nutriment." Sir William Jenner also, in the article I have quoted, states that "whatever ailments interfere with nutrition, and so with the formation of good blood," and "whatever external conditions are favorable to the formation of hydremic blood in a child seem to be favorable to the development of rickets."

The most detailed account, however, of the information which we possess on the subject of rickets is given by Kassowitz in his admirable work on normal ossification. This writer expresses the opinion that in the physiological state,—which comprises, of course an adequate supply of what may be termed normal blood, as well as healthy cells,—there is a regular destruction and regeneration "of greater or smaller particles of living substance" (p. 94), the regeneration being in excess of the destruction. In the pathological state, however, destruction is in excess of regeneration; and when the irritation "does not lead to complete death of the whole or part of the organism, necessarily, from that combination of circumstances, there follows what we describe under the name of inflammation." According to Kassowitz, then, the essential character of the rachitic process is an inflammation, the pathological irritation only differing from the physiological in the intensity of its action (p. 95). Under these conditions we should expect that not only "unhealthy cells," or irritative substances in the blood (toxins), with normal cells, but also an abnormal constitution of the blood, continued over a longer or shorter period of time, according to the degree of variation from the normal, or importance of the defaulting substance, would sooner or later give rise to evidences of "pathological irritation." The changes in rachitic bone have been carefully described by numerous writers. Rindfleisch pointed out that the swellings at the ends of the long bones are formed by what he terms an "intermediate substances" derived from the cartilage. Kassowitz showed that the chief part of this enlargement is occupied by the zone of growing cells; "the layer of cartilage, in which the cells are arranged in linear series, instead of being half a line, is from a quarter to half an inch in breadth" (Jenner). In addition, the calcification of the cartilage cells and matrix, the formation and distribution of fresh marrow spaces, the absorption of old bone and the deposition of new, instead of following an orderly and regular sequence, take place very irregularly. According to Kassowitz, all these occurrences are dependent on previous changes in the vascular system, of the nature of an abnormal fulness of the blood vessels, with increased formation of new vessels. It is these vascular changes which constitute the evidence that rickets is a chronic inflammatory process.

Kassowitz* brings forward evidence showing that simple hyperemia, or increased supply of nutriment, leads to an increased growth of the cartilage, with an increased absorption of old bone, accompanied by an increased deposition of new bone, i.e., to excessive growth. With rickets, however, the increased deposition of new bone is replaced by a delayed ossification, a condition which only occurs when there is increased formation of new vessels. It is thus evident that a further factor than hyperemia is necessary for the institution of the inflammatory process, and the question arises, can a defective nutrition supply this factor?

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* Bd. ii. Abth. 2, S. 19.

Kassowitz* has shown that the direct action of a toxic agent, such as particles of phosphorus, in the circulating blood can produce changes in the ossifying tissues in growing animals analogous to those which are found in histological pictures of bones affected by rickets. But, more important still, he has demonstrated a similar effect as the result of inanition.

By keeping very young animals for some days without any food, he observed changes in the growing ends of bones "which in many respects have a great similarity to the pictures of rickets and the effects of larger doses of phosphorus." The changes consisted of an enormous dilatation, with an increase in number of the blood vessels, accompanied by an accelerated absorption of bone and cartilage.

In a similar manner, by the artificial withdrawal of blood from a limb in a growing animal, he showed that a local inanition is capable of inducing an inflammatory state in the growing parts of the bones of that extremity.

In these circumstances there can be no question of the direct action of a toxin. The requisite factor can evidently be supplied by the negative phase of absence or deficiency of nutritive supply; and it is only reasonable to conclude that if the supply of nutrition as a whole can exert this effect, then the continued deficiency of any of its parts (fats or albumins from digestion, inefficient oxidation, etc.) will exert a similar influence. It seems to me that the position is admirably summarized by Kassowitz.** According to him, a general withdrawal of nutrition, as well as the cutting off of the nutritive supply to a portion of the growing organism, can in a short time give rise to a well-marked inflammatory state at the growing parts of the bone. From these two important facts, then, the causal

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*P. 97. **P. 98.

connection between a large group of injurious conditions capable of producing rickets, and the anatomically demonstrable inflammatory changes at the growing portions of the bones is made perfectly clear. Thus a quantitative or qualitative defect in nutrition, continued over a long time, will be able ultimately to produce the same, or a similar, effect that a general or local withdrawal of nutrition can bring forth in a few days. The continued giving of the wrong kind of food, as also every faulty chemical process of digestion and metabolism, will show itself during the time of active growth in an abnormal condition of the newly formed tissues, and will manifest itself in the whole body by an appearance of illness, by insufficient increase in weight, and by a greater vulnerability of the affected individual, and of his individual tissues and organs. At those ends of the bones, however, in which a very energetic growth is taking place, and where, therefore, a faultily built and consequently less resistant tissue is produced in greater extent, this vulnerability of the young tissue, and especially of the loose and unstable structure of the walls of the young blood vessels, will very readily lead to those inflammatory antecedents and their consequents which we define as rickets."

The bearing of this view of the etiology of rickets upon the therapeutic measures to be adopted is too evident to require detailed consideration.

REFERENCES.

1A. Practitioner, London, 1903, Vol. LXX., p. 797. 1. Baginsky, "Praktische Beitr. z. Kinderheilkunde," art. "Rachitis," Tübingen, 1882. 2. Holt, "Diseases of Infancy and Childhood," 1904, p. 266. 3. Encyclopœdia Medica, art. "Rickets." 4. Clutton, St. Thomas' Hospital Rep., London, 1886, N. S., Vol. XIV., p. 108. 5. Trousseau, Lectures on Medicine. 6. Roos, Ztschr. f. klin. Med., Berlin, 1903, Bd. XXXVIII., S. 120. 7. Kassowitz, "Normale Ossification," Bd. II. Abth. 1, S. 12. 8. Poland, Brit. Med. Journ., London, 1898, Vol. I., p. 1515. 9. James, Scot. Med. and S. Journ., Edinburgh, 1897. 10. Ref. by Roos, *loc. cit.* 11. Drewitt, Trans. Path. Soc., London, 1881, Vol. XXXII., p. 386. 12. Ref. by Boinet and Stephan, Arch. gén. de méd., Paris, 1903, Tome I., p. 449. 13. Trousseau, *loc. cit.* 14. Ref. by Boinet and Stephan, *loc. cit.* 15. Thomson, Lancet, London, 1903, Vol. II., p. 32. 16. Macewen, "Osteotomy," p. 2. 17. Ref. by Roos, *loc. cit.* 18. Ibid. 19. Lucas, Lancet, London, 1883, Vol. I., 20. Mikulicz, Arch. f. klin. Chir., Berlin, 1879, Bd. XXIII., S. 616. 21. Thiersch, Ibid., 1879, Bd. XXIII., S. 296. 22. Tripier, Gaz. hebd. de méd., Paris, 1875, p. 599. 23. Macewen, *op. cit.*, p. 22. 24. Jenner, "Clinical Lectures and Essays," 1895, p. 23. 25. Rokitansky, "Manual of Pathological Anatomy, Vol. III., p. 174. 26. Kassowitz, *op. cit.*, p. 68. 27. Rindfleisch. "Pathological Anatomy," New Synd. Soc., Vol. II., p. 234.

DUKES' DISEASE*

BY BENJ. EDSON, M.D.

In the London *Lancet* of July 14, 1900, Dr. Clement Dukes reports an epidemic of a contagious eruptive disease occurring in a school at Rugby—a disease which was declared to be neither measles, scarlatina, nor yet rubella, but which in its entirety presented some of the features of each of these three diseases. In the absence of any recognized name for this newly discovered disease, he called it tentatively the *Fourth* Disease.

His studies of that particular epidemic were confined to nineteen cases, although for some years he had observed similar epidemics leading towards the conclusions formed in this. His method of proving this to be a distinct, if not a new disease, was essentially clinical. Briefly summarized, it may be said that children that had already had measles, scarlatina and rubella, were not thereby rendered immune to this Fourth Disease, and still further, that some of those that had this so-called Fourth Disease subsequently contracted measles, scarlatina, and rubella, when exposed to them. Accepting Cullen's law that "one attack of an eruptive fever entails immunity from a second attack during childhood"—to which, as we all know, there are not infrequent exceptions, but which is in the main true—Dukes would account for those observed cases in which children are said to have had measles even three or four times, by assuming that one of these attacks was doubtless this Fourth Disease.

Broadbent and some others in England endorse the claim of Dukes, while others equally eminent hesitate, or decline to accept it.

Bokay (Deutsche Medizinische Wochenschrift, October 20, 1904) believes the disease to be a separate entity, and points out that Filatow in 1885 describes something of the kind and terms it rubeola scarlatinosa. Bokay proposes the hyphenated name Filatow-Dukes Disease.

In April, 1904, in the cases to which I shall refer hereafter, Dr. Winfield and myself used informally the equally descriptive term Dukes' Disease, and that name I shall use in this paper.

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*Read at a meeting of the Pediatric Section of the Kings County Medical Society, Dec. 28, 1904.

In this country but little attention has been given to Dukes' claims of having differentiated a distinct eruptive disease, and his views are received with some skepticism. A few writers have incidentally referred to Dukes' writings on the subject, but at best only with qualified acceptance.

French says: "There is much doubt about the propriety of admitting the (Fourth) disease as an entity, and not merely as a form of rubella."

In the International Annual for 1904 the subject is mentioned with a like reservation.

Curtis and Shaw, of Albany, in the *Medical News* of December 20, 1902, report 147 cases of an exanthematous epidemic at Round Lake—66 children and 81 adults. Nowhere else do I find recorded so great a preponderance of adults, either in rubella or in Dukes' Disease.

As a general rule these mild exanthems are confined almost exclusively to children.

And here a word in regard to the progressive differentiation of the exanthemata may not be out of place. In the days of Sydenham, all the eruptive fevers were classed under the general term variola. He observed a class of cases having certain distinctive characteristics and gave them a separate classification, as morbilli, or measles. Up to near the close of the 17th century, measles and scarlatina were considered as one and the same disease—measles. It seems incomprehensible to us that these two diseases, so unlike as we see them, could so long have been grouped together.

William Moss, in his essay on the management and nursing of children (London, 1781), gives extended consideration to small pox, chicken pox and measles, but does not even mention scarlatina.

Another writer, near the close of the century, treats of measles at length, but devotes less than a single page of his book to that form of measles called the scarlet fever.

About the middle of the last century, rubella became detached, as it were, from its associated congeners as a disease by itself. The question is now raised as to whether rubella includes two or more distinct and recognized diseases.

Rubella is generally considered to be a multiform disease, varying widely as regards period of incubation, appearance of the eruption, general symptoms and complications. I here use the term rubella as synonymouus with and embracing German measles, French measles, rötheln, rubeola, notha, rubeola sine catarrho, and epidemic roseola, but not including symptomic roseola. Whether all these terms truly stand for one and the same disease, or for two or more distinct diseases, fairly admits of discussion.

In April and May, 1904, there occurred in the Home for Destitute Children, in Sterling Place, in this city, 64 cases of a contagious eruptive disease of an unusual character, and these cases constitute the text of this paper.

The first child attacked was an Assyrian boy about nine years old. He had been in the institution for several months, and the only communication with or from the outside world was through a visit from his sister, a young girl, who visited him just two weeks before. Although I do not know that this girl was ill, or that she brought the disease into the Home, I think the circumstantial evidence sufficient to warrant this assumption. This would make the period of incubation about fourteen days, which, so far as we could determine, was the average time of all the cases.

The first thing that called attention to the boy was the eruption on the face, particularly around the mouth. It soon extended to the cheeks, forehead, neck and downwards over the body and limbs. The time to the full development was about one day. It soon began to disappear in the order of its onset, and at the end of two or three days it entirely disappeared. In some few cases slight macules remained for two or three days longer.

The eruption was distinctly papular, small elevations close together, pale in color, with no tendency to bat's-wing grouping, except that in perhaps 25 per cent. of the cases the eruption over the loins and upper portion of the buttocks was manifestly crescentic, as in true measles.

Not one of the children was really ill. In only a few was there any elevation of temperature, none above 100 degrees Farenheit. There was no increase in pulse or respiration, no coryza or bronchitis, no loss of appetite or sleep. There was no pruritis, and in only one case was there noticeable desquamation. No enlargement of the glands, no complications, and no sequelae.

To this broad statement there were perhaps a dozen exceptions—cases in which there was efflorescence in the fauces and adjacent structures, and Koplik's spots were present as in measles. This last notable feature rests not on my observation alone, but can be verified by Dr. J. M. Winfield, who saw a number of the cases.

So far as I am aware, no mention has ever been made of Koplik's spots either in rubella or Dukes' Disease.

Indeed, Holt says, "Koplik's spots form a valuable means of distinguishing measles from rubella." The obvious inference, therefore, is that Koplik's spots are not found in rubella.

Corbett says that in rubella there is no tendency to form crescents. In these cases, at the height of the eruption, the crescentic form was very evident on the loins and buttocks.

The history of this first case represents the general type of all these cases, with one notable exception. That exception was a boy four years old, in which the eruption was a bright scarlet, covering uniformly almost the entire surface of the body and limbs, and looked like a typical case of scarlet fever. There was absence of fever, however, and all of the usual symptoms of scarlatina, except the eruption alone. So marked was the appearance that it was deemed prudent to isolate the child until in a day or two the rash began to disappear, and the disease followed the general course of the other cases. This case demonstrated conclusively that, notwithstanding the wide difference in the form of the eruption, the disease was one and the same. This was the only child of the 64 that was kept in bed for even one day, and the only one in which desquamation was positive.

The ages of these children were from four to thirteen years; only one adult, a woman of thirty-two, contracted the disease, although others were fully exposed to it.

Of rubella, Anders says, "Sore throat is nearly always present, with enlarged tonsils, dry cough and bronchitis. In severe cases, the post-cervical, axiliary and inguinal glands are involved."

Corbett says, "Tonsils swollen, with hoarseness and cough, in 96 per cent. of all cases."

These symptoms, with fever, appear to have been present in the cases reported by Curtis and Shaw under the name of rubella scarlatiniforme, and these seem to correspond in the main with those on which Dukes bases his classification of an independent disease.

The difference in the period of incubation is one of the basic points on which Dukes lays much stress in his differential diagnosis. Unless this is established beyond peradventure in a large number of carefully observed cases, it does not seem sufficient to warrant a new classification. It is a well recognized fact that in all the exanthemata. whatever may be the average, the incubation period varies widely in the extremes, as well as in different epidemics.

In these cases that I report, the symptoms and course of the disease do not correspond with the generally accepted features of rubella, nor yet with those described by Dukes. If for want of a better name they must be classed under the head of rubella, with the one given exception they belong to the morbilliforme type.

I have studied with some care Dukes' differential diagnosis between rubella and the Fourth Disease, in which he sets down in parallel columns the characteristic features of each, and I am forced to the conclusion that they are so almost exactly alike that one heading would answer for both, and the columns or headings might change places without making any material difference.

The importance of a correct diagnosis lies not in the gravity of the milder forms, but in the liability of mistaking them for the diseases that are truly serious. It is often impossible to diagnose correctly eruptive disorders at a first visit. This the health authorities expect us to do, but when a day or two later our diagnosis is found to be erroneous, some of us know by experience that it is not easy to convince the authorities that our report should be amended, and an unnecessary quarantine raised. Still more serious is it when a patient with a trifling eruption is removed to the hospital for contagious diseases, when, or on the way in the ambulance used indiscriminately for all kinds of contagious diseases, except perhaps small pox, the unwitting victim stands a good chance of picking up the real thing.

In view of all these facts, and in the light of your individual experience, is there a Fourth or Dukes' Disease?

This is the question that I submit for your consideration.

SOCIETY PROCEEDINGS

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

February 9, 1905.

DR. LE FETRA in the Chair.

ENLARGED SPLEEN.—This case, that of a negro girl, first seen in the winter of 1904, at the age of ten years, was presented by Dr. E. Long, Jr. She was the fourth child, the others showing evidence of rachitis, but healthy in other respects. The patient had had measles and malaria. Since an attack of pneumonia, eight years ago, she has been subject to nose bleed. When first under observation she was complaining of pain in her stomach, and the spleen was found enlarged, hard, and almost nodular. At that time the provisional diagnosis was pseudoleucemia infantum. It was the blood examination which lent interest to this case. Dr. Goldhorn reported the count as made a year ago and at the present time as follows:

	1904	1905
red cells	2,500,000	3,100,000
white	18,400	16,000
hemolobin	42%	43%

In 1904 there were a great many myelocytes and a good many eosinophiles, whereas almost none were found in 1905. A remarkable poikilocytosis was seen in the red cells in the earlier examination and was still marked, an unusual elongated corpuscle shaped like a sausage being the characteristic element. No megaloblasts nor malarial parasites were found. Macrocytes, all showing central pallor, were abundant, unusually so for a secondary anemia, the same was true of pessary forms. An increase of cogoulability was discovered.

Dr. Heiman thought it likely to be a case of splenic-myelogenous leucemia, but Dr. Goldhorn believed this to be excluded, as the myelocytes were not more than 4 per cent. and the mast cells almost wholly lacking.

SYPHILITIC PSEUDOPARALYSIS.—Dr. Jacob Sobel presented a paper on this subject, which will be found in full on page 401 of this number of PEDIATRICS.

VISCERAL SYPHILIS IN A CHILD WITH HEREDO-SYPHILIS TARDA.—This patient, a boy aged nine years, was presented by Dr. Welt-Kakels. The family history gave evidence of syphilis contracted by the father two years before the birth of this child, the fifth in the family, the others being healthy. He was very small at birth, which occurred somewhat before full term, and lost considerable blood through the slipping of the cord ligature. Snuffles appeared early. At six months the bones around the right elbow joint swelled. He had one umbilical and two inguinal hernias. At one year the right shoulder was dislocated. At two years, measles complicated with croup and pneumonia occurred. At three paronychia on the right great toe. At six years, interstitial keratitis set in in both eyes. At seven he had enlarged lymph nodes. Last summer he had bronchitis. Several weeks ago he began to suffer from abdominal pain, constipation, anorexia and a tendency to tire easily. He was undersized, badly nourished, pale and sallow, with notched median incisors. The cervical, inguinal and epitrochlear glands are slightly enlarged. The abdomen is considerably enlarged with markedly dilated veins. The liver was large and rather hard, not sensitive. Dulness of five and a half inches over the left lobe. The spleen was markedly enlarged, hard and not sensitive, its dulness joining that of the liver. The blood count showed red cells, 4,480,000, white cells, 11,000, hemoglobin, 30 per cent. Urine normal.

CASEINE DIGESTION IN RELATION TO INFANT FEEDING.—Dr. T. S. Southworth presented this subject in a paper which opened with the recognition of the empirical character of methods of infant feeding hitherto, and the different proportion of proteids, fat and sugar, in the various mammalian milks. The proteid consists of soluble albuminous bodies and of caseine, which probably differs in the different milks, as the caseine of one species is not digested with equal ease by another. Some of the investigations made at the New York Agricultural Experiment Station in the process of cheese making have yielded valuable results bearing on the question of infant feeding. It has been found that the calcium casein of cow's milk is changed by the rennet of the stomach into calcium paracasein forming a soft clot, indigestible in the stomach, which is passed on into the intestine. A little acid removes the calcium and leaves free paracasein and the addition of more acid combines with the free paracasein, in the case of the the hydrochloric acid of the stomach forming hydrochlorid of paracasein, which is a tougher curd than calcium paracasein, as is also free paracasein. In addition to the fact that cow's milk forms curds in the infant's stomach, less easily digested than those of breast milk, it is also true that the lactic acid may increase the quantity and indigestibility of the curd formed with rennet and acid in the stomach until the pepsin present cannot digest it. But if the milk was sour enough to curdle before being taken the acid has already acted and formed curds of lactate of casein and free casein, which are softer than those of paracasein and are not changed by the rennet. Consequently buttermilk and fully soured milk are more digestible. There is obviously great danger in allowing an infant's milk to remain in conditions favoring the production of lactic acid short of actual curdling. These facts explain the influence of lime water, bicarbonate of soda, etc., preventing the early clotting of the milk in the stomach, and allowing part of it in its fluid state to pass to the intestine and be there digested. Peptinized milk, also, has a portion of the caseine changed into forms incapable of coagulation. The fact that, especially with older infants, the digestion is improved by introducing a stronger diet, is accounted for by the fact that this provides more casein for the acid to work upon, thus forming free paracasein instead of hydrochlòrid of paracasein which is a tougher curd than the former. The passing of tough curds in the stools indicates a superabundance of acid, either the hydrochlorid acid of the stomach or lactic acid in the milk, or some other formed in the stomach during delayed digestion. The author believes that the chemistry and physiology of digestion will furnish ground for valuable future studies.

Dr. Chapin said that he had been working on this question of infant feeding for several years. He thought that the work in the direction of fine percentages had gone about as far as it could. It had seemed to him that the value of percentage feeding consisted chiefly in a knowledge of food values, and he had then taken up the study of the biological properties of milk. He commended the work of the Department of Agriculture and said we should know more about the proteid of milk, where best digested and how best prepared for digestion. He was inclined to think that its function was not wholly nutritive but developmental as well. There were limitations to the chemical manipuation of cow's milk and one must not expect to make it just like breast milk.

Dr. W. L. Carr said that it was an accepted fact that cow's milk was the best for artificial infant feeding when that became necessary, because it was easily obtained and adapted, but it must not be supposed that even when the chemical formula was made to approximate that of breast milk the assimilability was equally approximated. Astonishingly slight changes in the chemistry of breast milk occasioned disturbances in digestion, and in the use of modified cow's milk it was difficult to obtain such fine percentages. The nutritional condition of each individual patient should be considered, and the food carefully adapted to its needs.

Dr. F. M. Crandall said that the artificial feeding of infants was so difficult that any light on the subject was most welcome. The paper read had explained some of the unsatisfactory results of empirical procedure in this matter. He thought that general practitioners were apt to feed too large percentages of proteids and specialists erred in the opposite direction. Sometimes when a child on diluted casein passes tough curds it is due to too rapid taking of the milk and may be corrected by substituting a nipple with a smaller orifice.

Dr. C. G. Kerley thought that the discussion of the chemistry and physiology of infants' digestion and the preparation of milk did not cover the whole question of the digestion of proteids, and that more attention should be paid to the condition of the child. He had found a daily washing of the stomach most helpful in cases of malnutrition in infants. Abundance of fresh air, salt baths, massage and inunctions of oil were also valuable.

Dr. Godfrey R. Pisek said that the continued use of alkalies would neutralize the acid in the stomach, and if the milk was wholesome this would not be necessary. The addition of the alkali did not break up the curd, but merely secured its expulsion into the intestine before the requirements of the stomach were fulfilled.

Dr. E. F. Brush thought that a good deal of work on infant feeding was being done along wrong lines. He had no confidence in the work of the Agricultural Department and thought that the Board of Health should develop further its work of dairy inspection.

Dr. E. H. Bartley said that the removal of the calcium salts from the milk would allow the milk to pass through the stomach without coagulating if there were no calcium salts in the stomach. This was the problem he was now trying to solve.

Dr. Southworth said that what he wished chiefly to emphasize was the physical changes which the milk underwent in the process of digestion. He agreed with Dr. Kerley that it was necessary to improve the child's physical condition as much as possible in order to secure successful digestion. The washing out of the stomach removed decomposing matter and bacteria and acids, which had a tendency to form the tough curds. He thought that Dr. Crandall had succeeded by beginning with the weaker food and when the child's digestion had been brought into good condition replacing it with the stronger.

CHICAGO PEDIATRIC SOCIETY.

February 21, 1905.

PRESIDENT DR. SAMUEL J. WALKER in the Chair.

MONGOLIAN IDIOCY.—Dr. Julia D. Merrill presented a case of Mongolian idiocy. She said: This case is interesting because of its points of resemblance, as well as of differences to the last patient shown by Dr. West. This child, Ethel C., is also nine years old. She is five inches in height below the average for her age, while the weight is six pounds in excess. In both girls there are shortened stature, disproportionatally shortened extremities, open mouth, big tongue, guttural voice and deficient mentality. The differences will suggest themselves in the physical examination. My patient is the youngest of nine children, the others all being normal. Both parents are living, the mother at 52 years and the father 51 years of age. They are not related. There is no history of syphilitic or tuberculous taint in the family. The mother states she was not well during gestation, but doesn't give symptoms clearly enough to form an idea of the nature of the illness. Labor was normal, at full term. The patient was small at birth, but with the exception of size, no peculiarity was noticed by the family until the later part of the first year, when they realized she was making no progress in growth. Eruption of teeth did not occur and she made no effort to walk or talk until she had passed her second birthday. For a few months then there seemed to be a spurt of development, although at no time did she approach the normal standard. Formerly small and poorly nourished, she now put on flesh rapidly. When five years old she had measles, followed by pertussis. Neither infection was severe and she convalesced as rapidly as the other children. She had no illness excepting an occasional tonsilitis. She not only eats ravenously at the regular meals, but unless watched, will eat frequently in the intervals. She snores during sleep and has the habit of tongue sucking.

PHYSICAL EXAMINATION.—In the physical examination you note that adipose tissue is abundant and uniformly distributed. There are no supra clavicular pads. The skin is ruddy in color, warm, moist and of good texture. The hair is fine, not harsh and of average thickness. She has a round head, the antero-posterior diameter, being but a trifle longer than the parietal. There are no prominences and especially is this true of the occiput. The back of the head forms nearly a straight line continuous with the trunk. She can claim the term of "full moon" face. The forehead is low. The eyes seem widely separated, with epicanthic folds and upward tilt of the outer angles. The nose is small and flat at the root. She is a mouth-breather. Although the post-nasal space has been cleaned out and a bony exostosis removed, the habit of keeping the mouth open has not yet been overcome. The tongue has a characteristic appearance, said to be present in no other class of imbeciles, namely, the many deep fissures.

The chest is negative. There is a slight scoliosis and considerable lordosis. The abdomen is protuberant, but otherwise negative. The extremities are short, but not so markedly short as in the achondroplasiac. The fingers are tapering and there is incurving of the little fingers—whatever value that may have. The ligaments are all lax, allowing great flexibility of the joints. She tires easily, drops into a chair after standing a few minutes, and in many ways shows lack of the ceaseless activity of the normal child.

She is always good natured, imitates closely and obeys for the moment, but memory is poor. Her mental development is hardly that of a normal child of three or four years. She has a ready reply for every remark made to her. We may not be able to see any relevancy between her answer and the question, but it comes back quickly and seems satisfactory to her.

It was in 1886 that Dr. Langdon Down classified imbeciles according to racial types, as Caucausian, Negroid, Mongolian, etc. The Mongolian, or Kalmuc, is the only one that is recognized to-day as constituting a special type. These cases have been reported in Great Britain much more frequently than in any other country. Muir, who reported 26 cases, says that up to February, 1902, he was able to find in the literature of other countries but two German and Austrian and five American references. In Great Britain, Mongolian imbeciles are said to form from five to ten per cent. of all the mentally deficient. Muir estimates the proportion in Scotland as three per cent., and the type at least four times as common in cretinism. In a group of deficients, Kassowitz reports 22 cases of cretinism, 75 of Mongolism and seven of micromelia.

The etiology was believed by Langdon Down to be tuberculosis. Sutherland found a positive history of syphilis in eleven of his 25 cases. He considered it not an active manifestation of hereditary syphilis, but that the arrest of development is due to a "parasyphilitic condition." He acknowledged anti-specific treatment did not benefit. Advanced age of parents, bad health of the mother, consanguinity and alcoholism are causes suggested by others. None is present sufficiently constant to be considered of much etiological importance.

From the post-mortems it may be accepted that the condition is not due to the absence of any internal secretion. The thymus, thyroid and suprarenals are normal in structure. There are no evidences of imperfect ossification as in achondroplasia. There is an early union of the bones at the base of the skull, but this is probably secondary to the lack of development of the structures in that region. This defective growth has been noted in all the autopsies. In his report of the examination of the brains of five Mongols, Dr. A. W. Wilmarth says the small size of the cerebellum, pons and medulla was the most marked departure from the normal. Their weight in all the cases was only one-fourth of the average for age. Defective development is also seen in the imperfect hearts found in a considerable proportion of the patients, in the shortness of the extremities, the laxity of the ligaments, as well as in the retarded mental development.

Mongolian imbeciles show little resistance to disease and the prospect of long life is poor. To a limited extent they are teachable, but one cannot hope for improvement from the use of thyroid extract. This remedy may lessen the obesity, but has proved of no benefit in any other way.

Presentation of a Case of Cretinism.—Dr. J. C. West presented a patient who came under his observation about two months ago. The child is nine years of age, and is the fifth of six children. All the other children are well; the father and mother are both living and well. This child presented nothing abnormal, at least to the parents, until it was sixteen months of age, when the neighbors remarked to the mother that the child was somewhat backward. The mother then began to notice this. The child did not walk or talk. She nursed the child twenty months; then, when the child was about two years of age, it was taken to the Hahnemann Hospital for treatment. It was treated in that institution for nearly two years, with no apparent beneficial result. During that time an operation was performed under the jaw. You will notice a V-shaped scar under the chin following the rami. The object of the operation is not known; but the parents described it to me as though 'something had been cut and tied." Whether the surgeon tried to ligate the arteries and produce atrophy of the tongue, I do not know; but he operated for "protrusion of the tongue," so far as I can learn. After nearly two years' treatment in Hahnemann Hospital, the mother became dissatisfied and quit going there. Since that time the child has been observed by a number of physicians in the locality in which it lives, but none seemed to have recognized the true nature of the disease. The mother had been told that the child was an idiot, and that there was no hope for it. Perhaps the point of greatest interest is that the disease was not recognized by any of the several physicians who had seen it when it was a perfectly typical case. The patient came under my notice on the 20th of December, when the conditions were the same as you see now, except that they were much aggravated. Under specific treatment they have gone down. At that time the child weighed about ten pounds more than it does now. At present it weighs in the neighborhood of thirty pounds. It is about thirty and a half inches in height. It is difficult to measure the child accurately on account of its restlessness and its inability to stand The child has the appearance of low mentality; a broad nose, thick lips, protrusion of the tongue, large head, and lack of intelligence in the eyes. The skin at the time it came under observation was rough, and had the characteristic doughy feel of the cretin. The so-called fatty pads were present; and the reduction in weight is due probably to the disappearance of those fatty pads. The abdomen was pendulous, large, and at present it shows very plainly diastasis of the recti, with a tendency to umbilical hernia. The hair is thin, dry and coarse. The fontanelle is closed. The occipital protuberance is very well marked The hands are characteristic, although they are losing some of their characteristic points. They have a spade-like appearance, with stubby, short fingers. All of the long bones are relatively short and thick. The neck of the child is thick and short; and if there is any thyroid gland present, it is hard to make it out.

The child, when it was first seen, was placed on specific treatment. It was given a little too much of the thyroid extract. I considered the dose for a nine-year-old child, without thinking of the small stature, and for that reason a too large dose was administered, which induced marked nervous symptoms, with elevation of temperature. The rectal temperature, when the child was first observed, was 96½ degrees F. Restlessness and increased temperature were manifest in a day or two after the beginning of the treatment. The child got up to about one grain of thyroid extract at a dose. This was reduced until finally it was taking one-half grain of the thyroid extract three times a day, after which it showed very little tendency to restlessness. The mother of the child informs me that the thyroid extract was reduced to one-quarter of a grain for a little while, after which the dose was increased again. The skin was dry and rough, but now assumes more the characteristic of the skin of a healthy child. It is soft now and has lost that markedly dark color it had at the beginning. In general, the child is improving. Its voice, which you hear, is not nearly so hoarse as it was when treatment was first instituted, although at times it has been better than it is at present. The child cries more lustily than it did. It had difficulty in swallowing, but after about four weeks' treatment the appetite improved markedly until now it seems to be hungry all the time, and there is no difficulty apparently in swallowing. The tongue protrudes at present; but the mother tells me that most of the time the child keeps the tongue in the mouth. The lips are not so thick as they were. The child shows more intelligence than it did. On the whole, it has improved markedly under thyroid extract in two months.

So far as the prognosis is concerned, we do not know just exactly how much more the child will improve, but it has reacted so well under this treatment that we can hope for considerably more improvement. It has already begun to say such words as mamma and papa, which I think speaks well for a good result.

TYPHOID FEVER IN A CHILD OF FOURTEEN MONTHS, WITH PATHOLOGICAL FINDINGS.—Drs. Alfred C. Cotton and William J. Butler reported jointly this case. Dr. Butler, in reporting the case, said: This child was fourteen months old and was admitted to the Presbyterian Hospital on the 5th of January.

As to the family history, the parents are both living and well. This was the only child. It had always nursed; had never been sick and was considered healthy. The child's illness began on a Thursday afternoon, at which time the mother, on returning from a visit to a neighbor's house, found the child crying. It refused to nurse. That night it vomited frequently, was restless, and slept very little. The condition remained about the same Friday and Saturday, save for a higher temperature and greater restlessness. The child continued to vomit spontaneously after nourishment or water. The vomitus was said to have a foul odor and to be of a brownish color. Did not cough. Had a constipated stool on Thursday; since that tiime stools were liquid, brownish in color, and of a very foul odor. There were three or four movements in the twenty-four hours. Patient entered hospital Saturday at 7 P.M. Examination gave the following:

Child appeared to be well-nourished. It was restless; rolled its head from side to side, but made no noise. The hands and feet were cold. The eyes rolled upwards, but were negative. The neck and chest were negative, except for some fine moist and crepitant râles, heard posteriorly and below, suggestive of edema of lungs. The abdomen was slightly distended, but soft. The spleen and liver were not palpable. Lower extremities presented slight edema. After entrance the child had a temperature between 105.2 degrees and 106 degrees, until death, which occurred the following morning about two o'clock. Respiration was between 50 and 60 per minute. The bowels moved three or four times during the time the child was in the hospital. The pulse was very rapid and feeble.

The following is a report of the post-mortem examination, made by Dr. Bassoe, pathologist to Presbyterian Hospital:

REPORT OF PATHOLOGIST.—F. M., aged fourteen months. Clinical diagnosis, open. Attending physician, Dr. Cotton. Anatomical diagnosis, typhoid ileocolitis. Acute mesenteric lymphadenitis; acute splenitis, slight. Acute degeneration of liver and kidneys. Slight edema of the lungs and subcutaneous tissues. Patent foramen ovale.

The body is that of a well-nourished and well-developed female child. The length of the body is 75 cm. There is considerable edema of the subcutaneous connective tissue, which is most marked in the lower extremities. The peritoneal cavity is empty. The small intestines are distended with gas. The ileum hangs over the brim of the pelvis and is very hyperemic and dark in color. Both pleural cavities are empty and free from adhesions. There is no change in the pericardium; the thymus covers the upper half of the pericardium, and measures 6 cm. from above downward; 5 cm. from side to side, and 8 mm. anteroposteriorly. The thyroid gland is small and its cut surface normal. The larynx and trachea are not changed. The largest cervical lymph glands are 4 mm. long. The tracheal and bronchial glands are of similar size. The left lung crepitates. The cut surface is grayish-pink, and contains a moderate amount of blood and frothy fluid. The right lung resembles the left. The heart weighs 45 grams. The endocardium is everywhere smooth. The cavities of the right side of the heart contain clotted blood. The foramen ovale is patent by a large slit at its margin. The myocardium is of a uniform grayish-red color. The spleen measures 6.5x3.5x1.5 cm. The cut surface is mottled, dark red and gray. The Malpighian bodies are very distinct. The tongue and pharynx are not changed. Each tonsil measures 15x7 mm., and contains a grayish nodule, 2 mm. in diameter. The esophagus is smooth. The stomach is empty, and measures 8 cm. from side to side. The mucous membrane is smooth and thin, with slightly developed rugae. In the upper portion of the small intestine there are no changes. In the upper portion of the ileum Peyer's patches are moderately swollen. This swelling gradually increases from above downwards. Necrosis of the swollen patches appears within 40 cm. of the ileocecal valve; 25 cm. above the ileocecal valve is a greatly swollen patch which is partly necrotic. The mucosa below this patch is everywhere hyperemic; both Peyer's patches and the solitary follicles are swollen and partly necrotic. Just above the valve is a patch 4 cm. in length, from which the necrotic tissue has partly sloughed away. The ileocecal valve itself is swollen and partially ulcerated on its proximal surface. The mucous membrane of the appendix is smooth, but hyperemic, and has a distinct, shaven-beard appearance. The mucous membrane of the ascending colon is also swollen and the solitary follicles are very prominent. Throughout the mucosa scattered dots the size of pin points are seen; these are identical in appearance, but much less numerous than those which give the shaven-beard appearance to the mucosa of the appendix. There are no ulcers present in the large intestine. The mesenteric glands, especially those closest to the ileocecal valve, are enlarged and soft. The largest of these glands are 14 mm. in length, and the cut surface is grayish-red in color. The liver weighs 245 grams. It is smooth externally and rather soft; the cut surface is grayish-red, and the markings are rather indistinct. In places the cut surface has a mottled appearance, on account of the presence of very pale areas. The gall-bladder contains dark bile. Its lining is smooth. The pancreas and adrenals are not altered. The right kidney measures 6x3.5x2.5 cm. The capsule strips off easily, leaving a smooth surface. The cortex is 4 mm. in thickness, and is rather pale. The relation of cortex to medulla is as 1 to 3. The markings are not distinct. The left kidney answers to the same description. In the urinary bladder there is no change. The uterus is 2 cm. long. Each ovary measures 18x7 mm. The spinal meninges and cord show no changes; the cerebro-spinal fluid is clear. The brain could not be examined.

HISTOLOGICAL DESCRIPTION.—Sections from the intestine show marked hyperplasia of Peyer's patches, the lymphoid tissue in the submucosa constituting over half of the thickness of the bowel wall. The overlying mucosa is thin, hyperemic, and in places it is absent, leaving the submucosa exposed. In the interior of the lymph follicles considerable hyperemia is present, and proliferation of large cells (endothelial). Many polymorphonuclear leucocytes are seen among the larger cells. The muscular and serous coats are not involved. In the spleen the lymph follicles forming the Malpighian bodies are also prominent, and resemble those of the intestine in appearance, being largely made up of large cells. The pulp is greatly engorged with blood. In the kidneys the epithelium of the convoluted tubules is somewhat swollen and granular. The glomeruli are not altered. Aside from hyperemia, no change can be made out in specimens from the liver prepared in the usual way. The heart muscle, thymus, thyroid and pancreas are not altered.

BACTERIOLOGICAL EXAMINATION.—A bacteriological examination was made of the bile and spleen. The culture media remained sterile.

Clinically, this patient was sick about sixty hours, prior to which time the child apparently showed no special disturbance of any kind, so far as the parents noticed. It is not improbable, however, that the child had been ailing for some days, or had presented some symptoms which were unnoticed by the parents. The course it pursued clinically simulated that of a case of gastroenteritis; but the pathological findings were accepted at once as those of typhoid. Many other conditions than typhoid may result in hyperplasia of Peyer's patches, that is, other infections than typhoid. But the hyperplasia, with ulceration, however, is not a common finding in other conditions than typhoid. We have in this case hyperplasia most prominent in the lower part of the ileum, especially in the region of the ileocecal valve. Although the diagnosis in our case will never be accepted as absolutely certain, on account of negative cultures, still the postmortem findings, the hyperplasia, the beginning necrosis, and ulceration of Peyer's patches, together with hyperplasia of the adjacent mesenteric glands, form the typical anatomical picture of typhoid in a child in whom the hyperplasia predominates over all other features. While ulceration is more characteristic of adult life and late child life, hyperplasia of Peyer's patches is most commonly to be found in infants. Rilliet and Barthez, when pointing out the difference between typhoid in children and in adults, called attention to that fact. They spoke of typhoid in infants and in younger children as being characterized chiefly by hyperplasia of Peyer's patches, which in the majority of instances in young children, instead of proceeding to ulceration, terminated in resolution, and drew attention to this as one of the striking differences between typhoid in the infant and typhoid in the adult. While we do not wish to be placed on record as making a diagnosis positively of typhoid in this case, we cannot see what other diagnosis could be made anatomically. On the other hand, it is not improbable that there were bacilli in the bile and spleen, but that they were few in number and escaped detection.

Dr. Butler called attention to a point that seems to be a symptom of gravity in typhoid in children, and that is vomiting at the onset, which continues into the course of the disease. He has the record of another case, six or seven years old, in whom among the first prominent symptoms at the onset was vomiting, which persisted throughout the course of the disease. The child died on the seventh day, with a temperature of 106 degrees, and a pulse of 170 just before death.

PHILADELPHIA PEDIATRIC SOCIETY.

January 10, 1905.

The President, Dr. J. H. Jopson, in the Chair.

Intesinal Atony in Infant.—An infant, two years old, was shown by Dr. D. J. M. Miller. The child had been well at birth, and as far as was known until it was weaned, at the age of ten months. It was fed after weaning on condensed milk and various infants' foods. Four months later it was placed at a baby farm, and when its mother took it back again, after an interval of several months, she noticed at once that it did not seem as bright as it should, and that the abdomen was distended. The child had been to several hospitals at different times since then, and came under Dr. Miller's care at the Children's Hospital. There was a history given of persistent diarrhea and of improper feeding. The child was rickety, with emaciated limbs, and the abdomen distended to a circumference of 23 inches. The stomach when filled with water could not be outlined, and the colon could retain a quart of fluid for some twenty minutes. Palpation failed to detect the liver or spleen or any enlarged glands or masses. Large quantities of intestinal gas were constantly being passed. The superficial veins could easily be traced over the abdomen, but their junction with the thoracic veins could not be made out. The temperature ranged between 99 and 101 degrees Farenheit. Secondary anemia was present. A few hyaline and granular casts were occasionally detected in the urine, with a trace of albumin. The possibility of intestinal or mesenteric tuberculosis was recognized, and two injections of tuberculin made; reaction followed promptly in both cases, but, nevertheless, this was not thought sufficient evidence upon which to base a diagnosis, since the reaction might be due to a focus of tuberculosis elsewhere. The presence of bronchial and intestinal catarrh of long standing made it not improbable that this focus might exist in the bronchial lymph nodes or the mesenteric glands, although it had not been detected there. The patient had improved in weight and general condition under careful feeding, massage and strichninae injections, but the mental as well as physical backwardness was marked. The child did not speak at all, and gave no sign of recognizing anyone, even those who had cared for it for a long time. The movements of the fingers almost suggest athetosis. Whether malnutrition alone accounted for the mental defects or whether the cerebral development was arrested could not be determined. Dr. Miller, while admitting that abdominal tuberculosis was possible, inclined to a diagnosis of extreme intestinal atony, due to rickets and intestinal catarrh, and the brief discussion following agreed in general with his conclusion.

Congenital Obliteration of the Bile Ducts.—Dr. J. P. Crozier Griffith read a paper on this rare cause of icterus in the newborn, with report of a case. A child, ten days old, with a negative family history, and born at term, was brought to the hospital with severe jaundice. Nothing wrong had been noticed during the first three days after birth, meconium passing per rectum up to that time. Then the mother noticed jaundice. Some infection of the cord became apparent; the stump fell about the eighth day. The child was small and emaciated, skin and conjunctivae extremely icteric, pulse feeble and rapid; respirations accelerated. No food could be retained. Constipation was absolute, and bile present in the urine. Death took place twelve hours after admission to the hospital. The autopsy showed a complete obliterating stenosis of the common bile duct about a quarter of an inch above its opening into the intestine. The lesions characteristic of this disease consist in obstruction somewhere in the biliary passages. The bile ducts may be wanting or imperfect, or represented by a fibrous cord. They may be apparently normal but with the lumen obliterated. The gall bladder may be absent, or much dilated. The liver is generally firm, dark green or of a natural color and exhibits some lesions of hypertrophic cirrhosis. The cause is often obscure. The fact that several cases in the same family are reported in several instances would suggest a congenital failure of development. In other cases the existence of an obliterative inflammation seems probable. The chief symptom is icterus, next in importance being acholic stools. Vomiting is apt to occur, also hemorrhages from the cord. Death occurs in convulsions or sopor or from exhaustion, usually after a course several weeks or even months. There is great difficulty in distinguishing congenital obliteration of the bile ducts from other forms of severe icterus. Cases are on record with recovery, which, if they had terminated fatally, would have been diagnosed as congenital obliteration of the duct, and others in which death probably resulted from some acute cause, as catarrhal inflammation, totally closing a congenitally narrowed but not obliterated passage. The prognosis, if the obliteration is complete and organic, is absolutely bad, and treatment can be only palliative.

Dr. La Roque reported on his findings at the autopsy on the case described, and several members added remarks which tended to indicate that when biliary cirrhosis is found in conjunction with the stenosis the latter is the primary condition. In reply to a question Dr. Griffith said that fever is not a symptom in obstruction.

Primary Right Dorsal Scoliosis in Infant.—The case of a child developing lateral curvature at the age of eleven months was reported by Dr. H. C. Carpenter. There was no history of traumatism, and the family showed that the mother had had several miscarriages and premature births. This child, however, was born at term in easy labor. An attack of enteritis at the age of six months is the only illness it ever had. It is poorly nourished and deficient in muscular development, was breast fed for six months and since then has had broth, crackers and milk and potato. There are no subjective symptoms, no pain or tenderness, no evidence of rickets.

THE DIETETIC USE OF PREDIGESTED LEGUME FLOUR.—Drs. Edsal and Miller presented a paper on this subject, with special reference to the diet of atrophic infants. Such flours have been occasionally used for some years, but the matter has not been studied. They can be used in small quantities only, and they are not easily digested unless predigested. The series of cases studied is not large, and the results therefore somewhat tentative in character, but there is evidence that the bean proteid is readily absorbed, and that it affects metabolism fully as much as milk, or even more in the case of atrophic infants. After malting the bean flour was given in a milk mixture.

Dr. Griffith explained his interest in Dr. Edsall's experiments, and commented on the value of the results which demonstrated scientifically that the proteid in question was a valuable substitute for cow's milk.

In response to inquiries Dr. Edsall said that the experiments had not been tried on acute cases, although a number of the babies were just recovering from such. He thought that this diet enables the proteid to be increased in cases where such an increase by means of milk was not well borne, whereas the amount of milk could be adjusted to the individual case and thus guard against scurvy and similar nutritional disorders. Temporarily, also, the food could be used exclusively, since it furnished sufficient nitrogen. He had so used it in one desperate case, with success. Apparently it is easy of digestion.

NEW YORK ACADEMY OF MEDICINE.

Section of Orthopedic Surgery.

Meeting of March 17, 1905.

Dr. Homer Gibney, Chairman, in the Chair.

Dr. Whitman presented the following cases:—The first patient, a girl eleven years of age, illustrated the practical cure of equino-valgus deformity, caused by paralysis of the tibialis anticus muscle. This operation, which he had described before on several occasions, was conducted as follows: The tendon of the longus hallucis was divided, drawn through a hole bored in the navicular, looped over and sewed to itself and to the shortened tendon of the tibialis anticus, at a sufficient tension to hold the foot in slight dorsal flexion. Arthrodesis was then made between the head of the astragalus and the navicular and the two bones were sewed to one another with strong silk. The foot was then placed in an attitude of moderate varus and a plaster bandage applied. Soon after, the patient was encouraged to walk about, the plaster apparatus being retained for about three months in order to impress the new attitude upon the foot. This operation was, as in this instance, as a rule so effective that no apparatus was required.

It might be noted that the accessory tendon of the great toe was sufficient to hold it in proper position.

Case 2.—This patient, a boy of six years of age, illustrated the effect of the Phelps' open incision in correcting club foot. He had performed a number of these operations recently in a type of cases familiar in hospital practice in which, because of neglect of after treatment, a certain degree of varus presisted. He thought no operation was as effective as this in assuring a permanent result in cases of this class.

Case 3.—This patient, a girl sixteen years of age, came to the hospital from Porto Rico. She presented a congenital club foot that had never been treated, and yet the deformity had been completely over-corrected by forcible manipulation without dividing a tendon even. The case was presented to contrast it with the preceding, as an illustration of the fact that the resistance of congenital deformities of this class by no means corresponds to the age of the patient. It was his custom in the treatment of club foot in youth, and adult age, whenever possible, to divide the operative treatment into several sittings, forcible correction always preceding more radical procedures. In this case the correction was easily accomplished in three operations.

CASE 4. EXCISION OF THE ANKLE FOR TUBERCULOUS DISEASE. —The patient, a woman twenty-five years of age, was admitted to the Hospital for Ruptured and Crippled last summer. She presented advanced tuberculous disease of the ankle of three years' duration. On investigation the disease was apparently confined to the astragalo-tibial joint. The astragalus was removed and in order to eradicate the disease of the tibia it was necessary to open its medulary cavity. It would be noted that the result was not only a cure of the disease, but free motion had been restored. The ankle joint was most favorably constructed for radical treatment since, as in this instance one might not only remove the disease, but restore function. Another point was of interest in view of the question of plugging cavities in bone with iodoform filling, that although this might have been tolerated the patient's condition could hardly have been improved by such treatment.

CASE 5. TENDON TRANSPLANTATION FOR SPASTIC HEMIPLEGIA.—This patient, a girl eight years of age, presented on admission to the hospital the ordinary equino-varus deformity accompanying hemiplegia. The contractions having been overcome, the tendon of the tibialis anticus with the lower portion of the muscular substance was divided into equal parts, and the outer half was attached to the cuboid bone. The foot was fixed in the over-corrected position by a plaster of Paris bandage for several months and the original deformity appears to have been overcome. In cases of this class it must be borne in mind that the operation simply restores in some degree the balance of the foot, but that cure can only be assured by constant supervision.

TORTICOLLIS.—Dr. Homer Gibney showed a case of torticollis. The boy was admitted last November, Dr. Gibney's service. He held his head inclined to the right, chin pointing over right shoulder—a compensating lateral dorsal curvature. Tendons of the sternocleido mastoid were divided subcutaneously, after which a jacket and jury mast were applied. The jacket was continued until within the past week, when it was removed. There is no limitation of motion, no scar, spine quite straight and deformity entirely overcome.

OSTEITIS.—Dr. Myers presented a case of injury to the cervical vertebrae, with symptoms of osteitis. Probably fracture of the second cervical vertebra. Cured with perfect motion in five and a half months.

M. P., boy four years of age. October 1, 1904, fell out of bed, turning a somersault. His two brothers fell on his neck. When his mother picked him up he seemed to have no power in the muscles of his neck, his head falling from side to side. He was put to bed; no other treatment.

October 22, 1904, first seen by Dr. Myers at St. Luke's Hospital. Head was held a little flexed, not rotated to either side and all motions of neck, especially rotation, were markedly restricted by reflex muscular spasm. Great tenderness over second cervical vertebra. Reflexes increased, but no disturbance of sensation below the point of injury.

T. 98.8 R. 28 P. 86. He was put on a Bradford frame, with his head tied down.

November 15, motion increasing somewhat in all directions. Second cervical vertebra still tender. Skiagraph shows no dislocation. Reflexes normal.

November 21, retention head brace applied. Bradford frame continued.

January 28, 1905, no vertebral spines especially prominent. Rotation to right and left 60 degrees. Inclination to right and left 60 degrees. Flexion and extension but slightly restricted now. No pain.

February 2, 1905, brace removed, and five days later he was allowed up.

February 21, 1905, no deformity. Motions free. No pain or spasm. Discharged cured.

HEREDITARY SYPHILIS.—Dr. Charlton Wallace showed a child nine years of age, a typical case of hereditary specific disease. It is interesting, because one sees few of these in orthopedic hospitals and clinics. She has osteo-periarthritis of both knees, ostitis of both tibias and two or three ulcerations. She was sent to Sea Breeze Hospital, an experimental institution, for the sea air treatment of surgical tuberculosis, last June. Was seen in November and it was diagnosed then as specific. There was much tenderness then over both tibias, but this has disappeared under potassium iodide treatment. She cannot stand erect and the knees are held at an angle of 170 degrees, but the joints are not specially painful. Her general condition has much improved, and she has gained eight pounds in weight. She was discharged in March, there being no evidence of tuberculosis.

EQUNO-VARUS.—Dr. Hibbs presented the following cases.

J. K., boy aged three years, entered the New York Orthopedic Hospital June 21, 1904, with both feet in a position of marked equino-varus. The deformities of his feet were corrected by manipulation under ether at several different times. After this, however, there remained such an amount of twisting of the tibias that it was necessary to do an osteotomy on both. This operation was done January 13, at the junction of the middle and lower third. It was necessary to rotate the lower fragment with the foot outward about 60 degrees to correct the deformity. There was little difficulty in the treatment of the deformity of the feet, but this condition of twisting of the tibia sometimes seen in such cases cannot be overcome except by osteotomy.

K. C., girl, aged 11 years, entered ward June 17, 1904, with feet in a position of equino-varus, slight amount of internal rotation, no twisting of tibias. Walked on dorsal edge and outer aspect of foot, where there was a great callus.

July 11, stretched and put up in plaster.

July 20, stretched and put up in plaster.

August 1, stretched and put up in plaster.

August 13, tendo achilles lengthened 1½ inches in both legs. Feet placed at 90 degrees in plaster.

Boy, aged three years, entered ward October 19, 1903, with a paralysis of the small finger, the result of severing a branch of the ulnar nerve.

October 23, the branch of the ulnar nerve supplying the little finger was sutured and the hand put up in plaster.

November 14, dressing removed, wound healed. Nerve showed signs of beginning to revive.

December 4, no evidence that the function of the nerve had been restored, as there was still loss of power in the flexors of the small finger. Discharged.

This boy had not been seen by Dr. Hibbs again until March 16, when it was observed that there was power in that tendon. The boy does not use the finger quite properly yet, but neurologists who have seen the case say he is steadily gaining ground.

EDITORIAL

ILL-NOURISHED CHILDREN: ANOTHER PHASE OF THE QUESTION

The subject of the nourishment of the children of the poor has attracted considerable attention of late, as the public awake to the realization that sickly children cannot make strong men and women, and that such men and women are a matter of vital importance to the nation. One phase of the question has been handled more directly in Boston than elsewhere, and some of the results noted there may be commended to the attention of other cities, especially New York.

In a recent discussion in the latter city regarding the children who go breakfastless to school, one whose experience warranted knowledge of the matter said that often a mother, going early to work, would give a child a few pennies and tell him to get his own breakfast. The child was apt to be attracted to the cheap candy counters which abound in the poorer districts, and there spend his pennies for sweets which at the best consist of glucose, vegetable dyes and paraffin, and at the worst of an insoluble form of paraffin and deleterious coloring matter. That this candy eating habit is largely prevalent among the children of the poor no one can doubt who has even a casual acquaintance with the regions where they live, and such an acquaintance provides a lively recollection of the counters spread with wares exposed to the dust and filth of the street.

It is true that the Board of Health inspects the stock of these small dealers, and has power of confiscation as regards the wares containing matter actually poisonous. But this does not reach the vast majority who deal in stuff which is merely an inadequate substitute for the food which the little bodies need. Naturally, after dumping a quantity of these cheap sweets into his stomach the child experiences loss of appetite, if not a more serious disturbance of digestion, and the continued use of such substances results in disorders of the stomach, anorexia, anemia and loss of power to resist disease.

In view of these facts, the United Workers of the South End in Boston opened a pure candy counter in the Hawthorne Club playground, and it has proved a success from the first. The children readily grasped the idea that as the candy was a better quality they could not get so much for a penny, and the taste for wholesome and dainty sweets was easily cultivated. At first only plain sweet chocolate and peanut balls were sold, furnished by Huyler's management at wholesale prices and sold to the children at cost.

Later, when the playground was closed in the autumn and the clubhouse opened, another counter was instituted with a larger variety of simple candies. The cooking classes of the club took up the manufacture of peanut brittle and similar candies, and were able to sell them at nine cents a pound.

At Lincoln House also the pure-candy question has been taken up successfully, in this case through a preliminary mothers' meeting, at which the ingredients of cheap candy were shown separately and the point made clear that in buying such candies the purchaser did not get his money's worth.

The objection has been raised that children in such a position ought not to spend money for candy anyhow, and should be discouraged from doing so and taught to save pennies, but "it is a condition that confronts us, not a theory," and so long as the cheap candy counter besets the child's steps at every turn it is folly to talk of stopping all expenditures in that direction. The best that can be done is to provide an opportunity for getting his money's worth in pure, wholesome sweets, and possibly at the same time, if the candy counter is under the charge of the settlement worker, gain his confidence sufficiently to persuade his pennies ultimately into wiser channels.

OSTEOPATHY ON THE STAGE

Despond not, O Osteopathy, though medical societies be hostile and State senators obdurate. Rather proclaim: "Let us make the drama of a country and we care not who makes the laws." The play is mightier than the code, and "Mrs. Leffingwell's Boots" have nightly marched to triumph all winter at the Lyceum, a triumph most justly thine, O goddess of the insinuating punch, the subtle twist and the mighty pull.

Never since the days of Euripides was such a handy *Dea ex Machina,* with such an effective field of action.

Mr. Thomas has done his work well, and his mischievous element in the shape of a young man not quite crazy enough to be locked up or even recognized as such by his family, but possessed of moral obliquity which dictates cunning and shameless schemes for the procuring of money, is worked up with a verismilitude easily recognizable by anyone who has had dealings with that particularly trying type of mental disorder. Given such a man, with the opportunity afforded by a jealous husband, ready to pay a "private detective" for tangible proofs against his wife, and the appearance of the lady's boots on another man's fire escape is easily deduced. Then for the purpose of the drama, pitchfork the various victims of the irresponsible villain into a suburban country house, marooned there by the "worst blizzard since Roscoe Conklin died," with all the complications and excitements made possible by unexpected guests and supplementary servants, introduce the young man himself, once more on cash intent, and then—Osteopathy to the rescue!

Just "one of the cervical vertebræ impinging on a nerve" was the root of all the evil, and "made a crook out of a remarkably straight boy," and as soon as the old doctor, himself a convert by a similar experience, gets in some of his osteopathic fine work on him, the crook is straightened again, all his misdeeds confessed and forgiven, and we "leave 'em all in couples, a-kissing on the decks." 'Rah for Osteopathy! It is so charmingly easy and expeditious—morals mended while you wait! No tedious and patient efforts at reform through education, nor even the comparatively lengthy miracles of trephining, with the implication of hospitals and slow recovery. Just catch your crook, and the rest is accomplished in an artist's studio before breakfast!

What glorious vistas open before the creative imagination as these results are contemplated! Who knows how much disaster and expense the country over is due to impinging vertebræ? The suggestion is irresistible of an osteopathetic clinic with long rows of convenient couches and muscular operators, receiving a stream of dangerous criminals and lunatics and turning them out valuable members of society.

And even now that Mrs. Leffingwell's Boots no longer pursue their blithe career in the midst of us, the good work still goes on; for the lesson of the stage has been taken to heart by that moulder of public tastes, manners and morals whose existence implies that of hope, and Osteopathy shares with Antivivisection the valiant defence of *Life's* freelance.

ABSTRACTS

Giant Growth of the New Born.—Jacoby (Archiv f. Gyn. lxxiv, No. 3) reports that of 6,796 children born at the Mannheim Maternity Hospital, 5.87 per cent. weighed 4,000 gm. or more. The longest duration of pregnancy in these cases was 349 days, the shortest 247 days. The author advocates artificial premature delivery as the best means of avoidinug danger in the delivery of these large children. He also gives a comparison of the data of different clinics in regard to the various aspects of fetal giant growth.

Childbirth in Cases of Giant Growth—Starcke (Archiv f. Gyn. lxxiv, No. 3) reports from Leopold's clinic in Dresden that of 34,000 children born there 3.43 per cent. weighed 4,000 gm. or more. Sixteen weighed 5,000 gm. each, and seven of these were spontaneously delivered. About 10 per cent. did not survive delivery. In only a small number were extraordinarily long pregnancies noted.

Cessation of Epilepsy Consequent on Removal of Adenoids.—St. Clair Thomson (The Practitioner, Apr., 1905) describes a case of a little girl who was sent to him by Dr. Ferrier, with the following note:—"She is under my care for *petit mal*, but she is getting deaf, and there are signs of some throat affection—probably adenoids. I am sure the epilepsy will also be benefited by the removal of this discomfort." The child was six years of age, and on inquiry it was stated that she had been subject to fits from the age of four. Two attacks of *petit mal* occurred during her visit to my study, i.e., two fits within twenty minutes. During these her head was thrown back, the eyes turned up, the upper eyelids twitched, and the inspiration was shallow and noisy. Each attack only lasted a few seconds, and the patient recovered consciousness without falling from her chair. The parents reported that she had caught a cold a month or two previously, and had since been noticed to be deaf and a mouth-breather. She was also said to be very restless in bed; talking in her sleep, and throwing off the clothes, but there was no enuresis. As is well shown in her photograph, the child had a marked adenoid facies. She was a constant mouth-breather; the root of the nose was very broad; and the inner fold of each upper eyelid, which by some is thought to be accentuated with adenoids, was well marked. She was said to have a dry nose, and anteriorly the nostrils appeared normal. The molar teeth had not fallen, but the palate appeared a little arched. The child was deaf, so that whispered speech was heard only at a distance of two yards. The mebranae tympani were very translucent, only slightly retracted, and the pink injection of the inner tympanic wall was easily visible, shining through the drum membrane. In children this appearance is very characteristic of Eustachian and middle-ear catarrh from adenoids, and, with digital examination, these growths were found to be plentiful. There were no palatine tonsils. It was explained to the parents that the removal of the adenoids was unquestionably indicated on account of the condition of the ears, and would probably prove beneficial in other directions. A large mass of adenoids was removed on August 25, 1898. On September 7 the patient had ceased to be a mouth-breather; the membranæ tympani no longer showed pink; and she heard a whisper at four yards. She was reported to sleep quietly and to be much brighter in herself, but the fits still continued. I did not think of writing to the parents for four years, and then (in 1902) they reported that the fits had ceased within a few months of the operation, and had not recurred. The next time I saw the patient was in March, 1904. She was found to be a very self-possessed, bright, and intelligent girl of 12, weighing 6 stone 8 pounds, i.e., more than 16 pounds above the average. She is no longer a mouth-breather; she has no trace of adenoids, and her hearing is perfect. There is no marked arching of the hard palate. The parents reported that for a few months after the operation she continued to take bromide under Dr. Ferrier's advice, but that the fits left her—as already reported—soon after the operation, and had not recurred. She had taken no bromide for six years. She is at the present moment nearly 13 years of age, and has had no fits for seven years. I have had other cases where adenoids have been removed in epileptic children without the satisfactory result above recorded, but I am prompted to put even one success on record. For there appears to be a general consensus of opinion that the most unsatisfactory cases of epilepsy are those in which the disease commences under 10 years of age: they show the smallest percentage of recoveries, and the largest number of confirmed cases.

Cerebellar Abscess — Operation — Recovery.—A. HUME GRIFFITH (Scottish Med. and Surg. Journal) reports the following case. The diagnosis was rendered more difficult by the patient being the "host" of innumerable round-worms (Ascaris lumbricoides). The patient (Jameel), a boy aged seven, was brought to the C. M. S. Hospital, Nablûs, Palestine, on the 30th day of August, 1904, by his mother. She said that, fourteen days before, he had been playing with his brother, and the latter had in fun thrown an iron skewer (used commonly in Palestine to string lumps of meat on), which struck him on the head a little below and to the right of the occiput. The skewer made a slight wound but fell to the ground, and the child cried for a little while and then resumed playing. A few days later the mother noticed that the child grew listless, complained of pain in his head, and seemed unable to walk. He ceased to care for his food and vomited frequently; so, after waiting a fortnight, she decided to bring him to the hospital. On examination, a small suppurating scalp wound was found about an inch to the right and below the occiput; this being enlarged, and the wound being carefully examined digitally and with a probe, no fracture of the skull could be discovered. During the examination the child vomited two long round-worms. The patient seemed dazed, pupils were enlarged, more especially the right, and he staggered on attempting to walk. The patellar reflexes were very sluggish, organic reflexes normal; pulse 58; temperature 98.4 degrees F. He was admitted as in-patient to the hospital. September 10.—Since admission, the patient has steadily grown worse. Santonin was administered, and the child passed "dozens" of round-worms. The temperature remains normal, the pulse-rate varying 58-68-80-96-102-96-96-88-68. The patient sometimes complains of severe pain in the head, but usually lies in his cot in a drowsy condition. The right pupil is widely dilated, patellar reflexes have vanished, and there is some incontinence of urine and loss of rectal control. Considering the evident serious condition of the child, it was resolved to operate immediately. Under chloroform I made a horse-shoe shaped incision—with the base downwards—over site of injury, cutting down to the bone and reflecting the whole flap. Hardly had the hemorrhage (which was profuse) been controlled when the child stopped breathing, and my colleague (Dr. Gaskoin Wright) and I had to, in turn, perform artificial respiration for half an hour before the breathing became again regular. It was noticed that during the whole of this time the pulse-beat was regular in time and rhythm. The operation was abandoned, as it was inadvisable to run the risk of the child dying on the operation table. However, on examining the bare skull a pin-point puncture of the occipital bone was observed an inch to the right, and below the occipital protruberance. September 12.—Having obtained the consent of the relatives, CHll3 being cautiously administered, I trephined over the punctured bone, a little below the right lateral sinus. On the removal of the plate of bone, a fracture (comminuted) of the inner table of the skull was found, the fragments of bone being firmly embedded in the dura mater. These were cautiously extracted. There was no visible pulsation of the brain, but it could be felt pulsating on pressure. The dura mater being tense and bulging somewhat into the wound, an exploring needle was plunged into the brain; a little serum followed by pus exuded; then a cataract knife was entered in the track of the needle (inwards and slightly downwards), and from the incision some two to three ounces of thick pus was evacuated. The whole of the right cerebellar lobe seemed to have been converted into an abscess cavity. An indiarubber drainage tube was then inserted, just into the mouth of the abscess cavity, and the horse-shoe flap allowed to fall over into place. After evacuation of the abscess cavity, the brain substance was seen to pulsate.

The patient bore the operation well, and his respiration improved as soon as the pus was evacuated.

September 13.—Patient passed a good night. Seems brighter and more intelligent. No longer complains of pain in the head. Pulse 120. Temperature 99.2 degrees F.

September 14.—Temperature 101.6 degrees. Pulse 124. The wound was dressed. Tube found not to be draining properly, so fresh one inserted. Discharge more serous than purulent.

September 15.—Temperature 99.2 degrees. Pulse 120. Patient much better. Knee reflexes have returned. Pupils (especially right) much smaller.

September 17. Temperature 99.8 degrees. A worm powder having been administered the previous day, patient passed eight worms.

September 20.—Temperature normal. Pulse 112. Wound dressed. Very little discharge. Granulations quite healthy.

September 21.—Right pupil no longer dilated. Child has evidently received full power in limbs.

October 3.—Drainage tube removed. No discharge. Whole wound healing rapidly.

October 9.—Temperature 102.6 degrees. Worm powder ordered.

October 10.—Temperature 99 degrees. Passed many worms.

October 11.—Wound in scalp healed. Patient allowed out of bed; has full use of limbs.

October 13.—Temperature 101 degrees.

October 14.—Temperature 99 degrees. Passed more worms.

October 18.—Discharged cured. Able to run races in the ward.

Patient was seen again a month after discharge from hospital, and there had been no return of symptoms.

Epithelioma of the Face in a Young Child.—M. J. Lippe (Courier of Medicine, May, 1905), reports the history of a case as follows: Beatrice B., a girl, aged four years, has never been ill, excepting the affection for which she was operated on, which constitutes the basis of this report, and is a normal child in every way. Father and mother living and healthy; has a brother and sister, both healthy; no history of malignant trouble in the family. About six months ago she developed three small flat warts, two below the inner canthus of the right eye and the third along the side of the nose, above the nasolabial fold. After they had been noticed for three months, the lower one (the one on the side of the nose) began to grow; the father of the child tried to pinch it off a number of times, but it grew in spite of his efforts. The author saw the child on January 16, 1905, and at this time observed the following: Two small warts, as above described, below the lower canthus of the eye; above the nasolabial fold was a warty-looking growth about one-third of an inch in diameter, raised above the surrounding skin. The color of the base of this growth was slightly red—dark-red, but not inflammatory looking; the top of the growth was grayish looking, like verrucous tissue, with a tendency to breaking down in the center. A lymph node at the angle of the jaw was enlarged somewhat. A similar condition in an old person would have impelled one to make a positive clinical diagnosis of epithelioma, growing on a wart, but occurring in a child of such tender years one would hesitate to make such a diagnosis unsupported by a microscopical examination. He told the parents that it was a nasty looking thing and that it was possibly malignant. They consented to an excision which he advised. The tumor was removed three days later, and sent to Dr. Carl Fisch, who reported a typical epithelioma. This is the report in detail.

Dear Doctor.—The small tumor (about 2.5 mm. in diameter in its alcohol hardened condition) removed by you from the right nasolabial fold of a child, and submitted to me, was found to be a typical epithelioma or a cancroid. Its center had through cornification led to a defect in which granular detritus and inflammatory exudate formed a plug. The peripheral zone of the tumor had grown under the adjoining epidermis, compressing and obliterating it; it was preceded by an area of inflammatory changes in the corium, leading to an elevation above the normal of the epithelium. The interpapillary processes of the epithelium in this zone were seen to be wedged out in a direction away from the tumor mass. In its central portion the tumor had penetrated beyond the elastic layer of the subcutaneous tissue, sending into the corium smaller and larger processes. The tumor is, therefore, an epithelioma, that had its origin from the cutaneous epithelium. It was not in direct continuity with the latter, but everywhere well-defined from it. Yours truly, Carl, Fisch, M.D.

Pneumococcus Arthritis in Infancy. — NATTAN-LARRIER (Archiv. Gén. de Méd., Feb. 28, 1905, p. 529) records what he believes to be the first published case of pneumococcus arthritis in an infant. On the nineteenth day after birth the child showed evidence of affection of the right shoulder-joint; on the following day this was plainly swollen, and two days later the child, who was greatly wasted, died. In 28 out of 32 cases investigated by the author, the arthritis was obviously secondary to pulmonary or broncho-pulmonary disease, but in the above case it was not. The origin of the disease must, therefore, have been due either to direct transmission from the mother or to infection from some local lesion. The mother was perfectly healthy and the interval of twenty-one days between the birth of the child and the occurrance of the arthritis also seemed to negative this hypothesis. The only local lesion from which the child suffered was a suppurating wound in connection with a harelip. At the autopsy the pus from this wound was found to contain pneumococci, and the fluid in the right shoulder-joint contained them in large numbers, but there was no pneumococcal infection of any other structure in the body. In view of the frequent presence of the pneumococcus in the healthy mouth, it was presumed that the organism had gained access through the wound in the lip to the general circulation, and had established itself in the right shoulder-joint, owing to its resistance having been lowered by an injury to it during a difficult labor in which the presentation was occipito-posterior. The general infection was probably favored by the weakly state of the child, its ill-nourishment being apparently associated with the pain it experienced in the lip on being suckled. The author refers to Cave's observations, according to which there was a determined local cause in 10 out of 32 cases of pneumococcus arthritis.

Urotropine in Scarlet Fever.—K. PATSCHKOWSKI (Therap. Monat., Dec., 1904) recommends that urotropine be given in all cases of scarlet fever, with a view to the prevention of nephritis. Widowitz first published an account of such a use of urotropine, and claimed to have treated 102 consecutive cases of scarlet fever without the occurrence of nephritis in any case. Patschkowski has used urotropine in 52 cases of scarlet fever at the Charlottenburg Hospital. Two methods of administration were employed. To 8 of the patients the drug was given on each of from ten to twenty-one consecutive days; the dose for children being 0.25 gram, and for adults 0.5 gram, three times a day. To the remaining 44 patients urotropine was given on each of three or four consecutive days, and a break of five days was then made before the administration of the drug was resumed. The treatment was begun as soon as the patients were admitted—that is, as a rule, before the end of the third day of illness. Of these patients, 2 only, or 3.8 per cent. of the whole number, developed nephritis, in spite of the fact that the fever was of a peculiarly severe type. In no instance was any harmful side-effect of urotropine observed. In addition to the cases already mentioned 10 others are especially mentioned. One was that of a patient admitted on the seventh day of illness with nephritis already present. After two days' treatment with urotropine albuminuria permanently disappeared. The other was that of a child treated with urotropine, who died on the twelfth day of the fever. At the post-mortem examination, endocarditis, pericarditis, pleurisy, a recent infarct of the spleen and peritonitis were all found, but the kidneys were normal. Some statistics are given to show the frequency of nephritis in scarlet fever treated on ordinary lines, and a consideration of them shows more clearly the value of the urotropine method. Heubner states that nephritis occurred in 10 per cent. of 318 cases of scarlet fever seen by him in private practice, and in 19.6 per cent. of 393 cases in hospital practice. At the Charlottenburg Hospital, in the two years before the administration of urotropine was introduced, 225 cases of scarlet fever were treated. After subtracting those cases in which death occurred soon after admission, or in which nephritis was present on admission, 177 cases remain. Among these there were 37 cases of nephritis, or 20.9 per cent., as compared with 3.8 per cent. when urotropine was used. The author suggests that urotropine may prove to be useful in cases of sepsis; for example, in puerperal sepsis.

Pneumococcic Membranous Bronchitis in a Child.—P. Menetrier (Bulletins de la Soc. Méd. des Hopitaux, Dec. 9, p. 1177).—The following case is of interest in consequence of the rarity of membranous bronchitis at such an early age apart from diphtheria. A child, aged two years and two months, was brought to hospital on March 1, 1904. For two months he had expectorated arborescent membranes after fits of coughing and suffocation. There were 2 other children in the family, aged respectively three and four years, who were in good health. When he was 8 days old he contracted bronchitis after exposure to cold, and the attack lasted more than 3 months. At four months he had another attack which lasted the same time. In January, 1904, he had a third attack which, like the preceding ones, was attended by fever and cough without expectoration. But the cough was more severe and on February 7, he expectorated, after a violent fit of coughing in which suffocation seemed imminent, a mass of whitish membranes which on being spread out in water were found to consist of ramified tubes. Since that time fits of coughing occurred nearly every day, but only every 3 days were membranes expectorated. He lost appetite and wasted. He was pale and thin. The throat was normal. The upper two-thirds of the left chest in front and behind were slightly dull on percussion and the breathing was bronchial and accompanied by large subcrepitant râles. The temperature was normal. Membrane was produced which looked somewhat like macaroni and was as firm as that of diphtheria. It formed a ramified mould of a whole pulmonary lobe without any central cavity. After Mar. 1 he expectorated no more membrane and had no attacks of suffocation. The cough diminished and he recovered appetite. On Mar. 5 the dulness and the bronchial breathing were still heard but no râles. After 2 months he was said to be quite well, but no further opportunity for examination was given. The membrane contained pneumococci in large numbers and yielded the pneumococcus in pure culture. A mouse inoculated with it died from pneumococcic septicemia. The membrane was composed of stratified layers of fibrin, leucocytes, and cubical epithelial cells of the type found in the capillary bronchi. Nowhere was there any ciliated epithelium of the type found in the larger bronchi. The writer concludes that the capillary bronchi were the seat of the disease.

Incontinence of Feces in Children.—M. OSTHEIMER (University of Pennsylvania Med. Bulletin, Feb., p. 405).—Though incontinence of urine is common in childhood, incontinence of feces has been seldom described; only about a dozen cases have been recorded. They may be divided into those in which some cause was found, and those in which the disorder was ascribed to the general nervous condition of the child. The second group has been subdivided into cases persisting from infancy, and cases in which the condition appeared suddenly, in children over the age of 3 years. The cause was either general, such as wasting disease, epilepsy, general paralysis, or the infectious fevers; or local, such as stretching of the sphincter from the prolapse of the rectum or impaction of feces or operations near the anus. In 3 cases the incontinence was due to distention of the rectum with feces in cases of chronic constipation. Incontinence began in a boy, aged 6, after constant constipation. At the age of nine, when he came under observation, the sphincter was found relaxed (Wallace, St. Bartholomew's Hosp. Reports, 1888, p. 260). Rivière reports a similar case in a girl, aged twelve, in whom incontinence was first noticed at nine; the rectum was evidently distended (Med. Moderne, 1898, ix, 308). Castor oil enemata were given for a week daily and permanent recovery followed. In 2 cases the incontinence had existed since infancy without known cause. Mendenhall reported a case in a boy, aged sixteen years. The incontinence began at the age of six months, after an attack of constipation. Under strychnine and ergot he eventually acquired control over the motions. In a similar case in a girl, aged thirteen, recovery took place under this treatment. The sphincter was relaxed. A case of incontinence of both feces and urine which existed from infancy in a boy, aged 8, is reported by Griffiths (Archives of Pediatrics, 1899). Under increasing doses of tinct. belladonnæ for 6 weeks the incontinence of feces disappeared, but nocturnal enuresis persisted. He was very nervous and had choreiform twitching with nocturnal and diurnal enuresis. Three months later the incontinence of feces recurred, but disappeared again under treatment. In 4 cases there was incontinence of feces alone. In 1, a boy, aged 7, after over-study suddenly developed incontinence of feces. The sphincter appeared normal. After 3 weeks of treatment (fresh air and the administration of ergot) recovery took place. In 2 other cases the incontinence was due to the same cause. In the text-books there are few references to incontinence of feces in children. Goodhart and Still state that the patients nearly always show mental instability. The following cases have been observed by the writer.

Case 1.—An emaciated boy, aged ten, was seen. At seven he had diphtheria and 6 months later scarlatina. Thereafter he lost weight and power in all his muscles. He had difficulty in swallowing and fluid regurgitated through his nose. Incontinence of feces had existed for 2 years. Under nutritious diet, fresh air and tonics he recovered in 6 months.

Case 2.—A big strong boy, aged six and one-half, was seen. Until the age of four he had both nocturnal and diurnal enuresis. Nine months before he was seen he suddenly lost control of the anal and vesical sphincters, after having been kept indoors for several weeks. The anal sphincter seemed normal; the prepuce was very long but without adhesions. Under fresh air, exercise, atropine, and strychnine he at once improved. Three relapses followed; recovery rapidly took place under strychnine and atropine (1-10 gr. of each daily).

Case 3.—A healthy looking well-developed boy, aged four and one-half, had had incontinence of feces and urine for a year. There were paroxysms of pain on micturition and hematuria. Under good food, fresh air, and strychnine the incontinence of feces disappeared in 10 days, but the incontinence of urine persisted. A vesical calculus was found and removed and he completely recovered.

Measles without Characteristic Eruption.—J. D. Rolleston (Lancet, Dec. 10, p. 1640).—A girl, aged five, was admitted to the Grove Fever Hospital on Sept. 12, 1904, the third day of an attack of scarlatina. The rash was fading and by Sept. 19 had entirely disappeared. Characteristic desquamation followed. There was slight albuminuria. On the 26th temperature, which had been normal, rose to 99.6 degrees at midnight. On the following day she vomited, an erythema appeared on the body, and the fauces and soft palate were injected. The temperature at 8 p.m. was 102 degrees. During the night she coughed several times. On the 28th the rash had faded but the pyrexia persisted; the morning temperature was 100.2 degrees and the evening temperature was 101 degrees. Nothing fresh was noted on the 29th. The temperature was still slightly raised (in the morning it was 99.8 degrees and in the evening 100 degrees) and the cough continued to be frequent. On the 30th at 2 p.m. the buccal mucosa was found to be injected and showed 3 definite Koplik's spots. An urticarial wheal was seen close to the umbilicus. The temperature was 100 degrees. At 11 p.m. several urticarial wheals were seen on the trunk, the cough was troublesome, and there were profuse coryza, and signs of bronchitis. The temperature was 101.2 degrees. On the 31st the urticaria and Koplik's spots had disappeared. No other eruption was seen though search was made several times in the 24 hours. The coryza and the bronchitis persisted till Nov. 3, when the temperature finally became normal. Convalescence was uneventful. No desquamation followed and the child was discharged on the 18th. The child had previously suffered from measles, in July, 1903, when 3 other members of her family were attacked.

Of all the exanthemata, measles least frequently assumes anomalous forms. But their existence has been recognized since Sydenham differentiated measles from scarlet fever and non-eruptive measles, "morbilli sine morbillis" or "rubeola sine exanthemata." Willau first described "rubela sine catarrho." But some authorities have denied or doubted the specific nature of these conditions.

In the present case the diagnosis was based on the occurrence of several other cases of measles in the same ward and the presence of catarrhal symptoms, pyrexia, Koplik's spots, and the prodromal erythematous and urticarial eruptions. The erythema was at first taken to indicate a relapse of scarlet fever owing to its appearance preceding the catarrhal symptoms, its association with the injection of the fauces and soft palate (morbillary enanthem), and the occurrence of vomiting, which more often precedes scarlet fever than any of the other eruptive fevers. The mistaken diagnosis of a relapse of scarlet fever accounts for the paucity of Koplik's spots which were fading when first seen. They would probably have been found to be more numerous had the suspicion of measles prompted examination of the buccal mucosa at an earlier date.

The cause of the abortive nature of the disease was partly the character of the epidemic and partly the incomplete immunity acquired by the previous attack. In 3 out of 7 other cases infected simultaneously the measles eruption never reached the distal parts of the limbs. The partial protection afforded by a previous attack of measles is well illustrated by H. Balme, who quotes 13 cases, in all but one of which there was a very mild second attack. Two of these were instances of morbilli sine morbillis, the diagnosis being established on the characteristic symptoms, the presence of Koplik's spots and the spread of infection to other members of the family.

Tobacco Deafness.—Dr. Delie (Rev. Hebd. de Laryngologie, d'Otologie et de Rhinologie, Jan. 28, p. 97).—Case 1.—A boy, aged thirteen, whose hearing had always been good, developed slight deafness with loud noises of different kinds in the ear, and some vertigo. He was pale and thin and complained of dimness of sight. A tuning-fork placed on the vertex was heard normally, over the mastoid the duration of audibility was shortened. Low-pitched sounds were heard longer than high-pitched. The writer could hear a tuning-fork vibrating in the air for 23 seconds longer than the patient. There was no visible morbid change in the middle ear, nose or throat. The boy smoked 20-30 cigarettes a day. The writer diagnosed nicotine poisoning affecting the ears, and forbade tobacco. In 4 weeks the hearing was quite normal.

Recurrent Herpes Zoster: Zoster Erythematosus and Zoster Vegetans.—H. Vörner (Münch. med. Woch., Sept. 27, p. 1734).—A limited number of cases of recurrent or relapsing herpes zoster has been reported. There are several varieties. In one the eruption recurs in the same place and the same nerve area. In a second, different branches of the same nerve are affected during a relapse. In a third the relapse affects an area supplied by a different nerve from that originally involved. The first two varieties are much rarer than the third.

Case 1.—A boy suffered from an eruption of vesicles over an area of one external ear exactly corresponding to the distribution of the great auricular nerve. Before and during the eruption there was smarting and darting pain in the part. The vesicles usually became purulent and healed with the formation of tiny cicatrices. The eruption occurred thrice in 3 years. The great auricular nerve also supplies the skin in front of the ear over the parotid, but usually by a branch distinct from that which supplies the external ear, In this case the herpes was vesicular, but the eruption may be nodular or papular, or consist of red, somewhat prominent patches, which may or may not become vesicular. If these patches are extensive they may resemble acute circumscribed erythema. Such red papules and patches may also occur in relapsing herpes.

Scarlatinal Infection.—R. E. Lauder (Lancet, 1904, Vol. i., p. 712) having arrived at the conclusion that "return cases" of scarlet fever are attributable not to the peeling condition, but mainly to undetected discharges from the respiratory passages and ears of those who have left the hospital, decided to institute a system of greater segregation and classification. Patients without complication after treatment in an "acute room" until the acute stage of the disease had passed, and a bacteriological examination had excluded diphtheria, were removed into a general ward where the recent cases were kept apart from those that were convalescent. Special blocks were reserved for the different complications into which a patient was removed on the supervention of such complication. At the end of the third week of the disease, if free from complications, the patients were transferred from the general ward to another pavilion after a careful process of disinfection. Here for one week the nose, ears, and throat were carefully douched with a disinfectant each evening after bathing, and the patient discharged no matter what the condition with regard to the peeling might be. Dr. Lauder states that by this means they have been almost completely freed from the occurrence of albuminia, enlarged glands, aural and nasal discharges, etc., and shows that the "return cases" have also been relatively fewer.

Ear Diseases following Acute Infections.—George E. Shambaugh (Medical Standard, Feb., 1905) says that the great frequency of ear disease in early childhood is a matter of common knowledge, and yet he believes it is quite safe to say that a large majority of cases of ear trouble at this age pass unrecognized. The types of ear diseases which occur with most frequency in early childhood differs widely from what is found in adult life. By far the most frequent form of ear trouble in young children is what is usually called the simple catarrhal otitis media—a mild disease running its course with slight symptoms and terminating in a few days or several weeks. The next most frequent type is the severer inflammation of the middle ear, the purulent otitis media. This is the only form that as a rule is recognized, and this often only when the discharge appears in the external meatus. The involvement of the labyrinth following the suppurative middle ear disease is not an uncommon occurrence. The primary involvement of the labyrinth in early childhood is unusual, but this is noted occasionally following mumps. I have seen but one such case, but a number have been reported in the literature. The condition comes on suddenly with symptoms of deafness, tinnitus and dizziness, just like the sudden involvement of the labyrinth which occurs in adult life, and results in complete destruction of the function of hearing in the ear involved.

There are several interesting questions in connection with the etiology of middle ear disease in early childhood. In the first place the great frequency of this trouble is attributed chiefly to two factors: The anatomical conditions are such that in early childhood infection is conveyed with greater ease through the tuba auditiva from the naso-pharynx into the cavum tympan. The second factor is that in early childhood occur with great frequency certain infectious fevers which, occurring at any age of life, are very prone to set up middle ear disease. Another point of interest in the etiology of these diseases is the question of how the infection reaches the cavum tympani. That there is a direct extension of the infection from the naso-pharynx along the tuba auditiva in many of the cases there can be little doubt, whether this is the only method of infection, or even the usual one, is a question which has not been settled. Bezold, in examining twelve temporal bones taken from children that had died from scarlet fever, found in all of them evidence of inflammation of the middle ear in varying degrees of severity, while in but a single preparation was there any evidence of involvement of the cartilaginous part of the tuba auditiva, and the conclusion was drawn that in scarlet fever the infection of the cavum tympani does not occur as a rule by extension along the tube, but that it was a result of hematogenous infection. Still another interesting question in the etiology of otitis media complicating the acute infectious fevers of childhood is whether the otitis media is caused by the specific germ which is producing the general infection. The evidence seems to show that at least in diphtheria the middle ear infection is only exceptionally produced by the specific germ of diphtheria, but is usually caused by a mixed infection. Those who have studied the scarlet fever infection from this point of view have usually found the otitis media resulting from a streptococcus invasion, which has been considered by some observers as identical with the specific germ causing the general scarlet fever infection. The situation seems to be that, while some of the cases of otitis media complicating the infectious fevers are the results of the invasion of the cavum tympani by the specific germ causing the general infection, it also frequently happens that the otitis media is caused by other pus producing micro-organism, particularly the streptococcus, staphylococcus and the pneumococcus.

The dangers from the middle ear diseases following the infectious fever of childhood come for the most part from the purulent type, yet the simple catarrhal form is not devoid of danger, for this may at any time change into the severe purulent form. Otologists recognize in the simple catarrhal otitis media the origin frequently of the dry chronic catarrhal otitis media, which in middle life causes a large proportion of the cases of severe incurable deafness. Purulent otitis media, complicating the acute infectious diseases of childhood, is a condition much more to be feared often than the original general infection. Every physician should be thoroughly awake to the seriousness of the condition and alert to detect its existence in its earliest stages, for much of the dangerous character of the disease can often be averted by proper treatment applied when the disease first manifests itself.

Scarlet fever, both in the frequency in which it involves the ear and the violence of the ear disease produced, stands in a class alone, far ahead of any of the other infections. It causes the most rapid and marked destruction of soft parts and bones of the ear, showing little tendency to heal, producing marked permanent disturbance of hearing, and having a high rate of mortality. The complications which are frequently seen in otitis media of scarlet fever origin are facial paralysis, rupture into the labyrinth, extensive destruction of the bones, especially in the region of the mastoid, involving frequently the lateral sinus.

The diagnosis of purulent otitis media is readily made by making a careful inspection of the membrana tympani. The failure to make the diagnosis is usually due to failure to suspect the possibility of the ear infection, and neglect in making the proper examination of the membrana tympani.

However typical and easily recognized the red and swollen membrana tympani usually is in cases of purulent otitis media, there are nevertheless cases where recognition of the condition is by no means an easy matter. This is especially true in younger children where the canal is often so small that, even with the smallest speculum, it is extremely difficult to get a satisfactory view of the membrane. In such cases it frequently happens that a pulsating light reflex seen in the depth of the canal gives the clue to the perforation of the membrane. In other cases it happens, particularly in scarlet fever, that a plug of desquamated epithelium completely stops up the bottom of the external canal, which, on examination, appears in the depth of the canal as a whitish area, and may be mistaken for the drum membrane itself. The removal of this plug not infrequently results in sufficient trauma to produce bleeding, which can readily be mistaken for a hemorrhagic discharge trom the cavum tympani and so prevent the incision of the drum membrane so necessary in the early treatment of this condition in order to prevent serious complications.

In scarlet fever it frequently happens that acute necrosis of the temporal bone occurs with no complaint except headache, with no pronounced signs over the mastoid, and even in the absence of disease in the cavum tympani, the infection passing over this chamber entirely only to become active in the remotes cells of the mastoid process. One should examine the mastoid for the slightest change in color or the presence of tenderness on pressure, as these may point to serious bone disease even in the absence of involvement of the cavum tympani and in the presence of a normal membrana tympani.

Another fact in connection with the otitis media of scarlet fever that is often overlooked is that this may set in before the desquamation stage in the earlier days of the disease.

Next to scarlet fever, measles endangers the ear more than any of the infectious fevers of childhood. The usual type of trouble here is the simple otitis media. The severe reactions are more rare in measles than in scarlet fever, but when they do occur they sometimes appear to be fully as severe as the worst case of scarlet fever infection, producing rapid and extensive destruction of the membrana tympani, mastoid involvement, caries of the ossicle, destruction of the temporal bone and extension to labyrinth through necrosis of the capsule. The symptoms that should lead one to suspect an otitis media in young children are extreme restlessness, sudden high temperature, the occurrence of convulsions and symptoms of meningitis. Why symptoms of meningitis occur so frequently in children suffering from purulent otitis media is explained by the blood vessel communications existing between the middle ear chambers and the brain cavity in the region of the tegmen tympani et antri. These communications are largely obliterated as the bones assume their adult character. These very severe symptoms associated with the onset of otitis media disappear at once upon incision or spontaneous rupture of the membrana tympani.

Another fact of great importance is that otitis media in childhood, from whatever cause, may often take a very protracted course, running through many weeks without causing rupture of the drum membrane, yet producing at irregular intervals rise and fall of temperature until finally the rupture occurs. In these cases the membrana tympani lacks the red injected appearance typical of purulent otitis media, but appears as a lusterless yellowish membrane often obscured more or less from desquamated epithelium.

Cerebrospinal Fever.—J. C. Wilson, Philadelphia (Journ. A. M. A., April 29), reviews the history, causes, symptoms, treatment, etc., of epidemic cerebrospinal meningitis, a disease which has at present a special interest on account of the lately occurring epidemic in New England and New York. While it has been recognized for about a century, most of our knowledge of the disorder has been acquired of late years, and largely through the work of our countrymen, Councilman, Mallory and Wright. Councilman's recent paper (Journal A. M. A., Apr. 1, 1905) is referred to by Wilson. Formerly the communicability of cerebrospinal meningitis was doubted, but it is now admitted that if the nose, ears or lungs are affected, it may readily be conveyed from one person to another. Second attacks are very rare; it is probable that one attack confers a persistent immunity. The germs are found only in connection with the lesions of the disease, but mixed infections are not uncommon. The symptoms are most diverse, there are no prodomes and the period of incubation is unknown. In the malignant cases the symptoms of inflammatory lesions of the brain and cord and those of a general malignant infection are both overwhelming. The author goes at some length into the description of the general symptoms and those of the anomalous types, the fulminant form, the abortive, the intermittent and the chronic types. Few diseases vary more in their severity and mortality, or are followed by more complications. The diagnosis may be difficult, but if meningitis be present, it is not usually embarrassing during an epidemic. In doubtful cases lumbar puncture should be resorted to, and the presence of the meningococcus in the cerebrospinal fluid ascertained. The differential diagnosis between this form and tuberculous meningitis may, in some cases, be far from easy without this. The mortality of different epidemics varies between 20 and 75 per cent., the average is estimated by Wilson as near 40 per cent. In the mildest cases no treatment is required; in the malignant ones none is effective. Quiet, nutritious diet, cold applications to the head and spine, laxative doses of calomel in the beginning of the attack and opium are recommended, the last-named drug being regarded as indispensable. For prophylaxis, cleanliness and avoidance of overcrowding in times of epidemics, isolation and sterilization measures, and in case of successive attacks in the same family, abandonment of the dwelling and thorough disinfection are advised.

Value of Medicated Clay Poultices.—A. H. Roth, Ann Arbor, Mich. (Journ. A. M. A., Apr. 15), has investigated the claims and the action of a representative medicated clay poultice. These preparations, he states, are made up of a base of silicate of ammonia and magnesia, to which various aromatics and antiseptics are added, together with glycerin to make a pasty mass. It is claimed that their external application acts as a reflex vasomotor stimulant and promotes dialysis through the skin. As the preparations are non-irritating, the reflex action must be exercised through the heat produced by the warm application, and Roth finds from careful experiments that they are inferior in this regard to ordinary warm flaxseed poultices. Experiments on the living subject showed that the dialyzing power was no more effective in exciting perspiration than heated gauze pads. There was no evidence of any osmosis or endomosis, as was shown by experiments made with fresh human skin as a membrane through which no fluid passed until it had become water-logged, a condition which it is doubtful ever occurs in the living subject. Roth speaks especially against the practice of using these mixtures in open or septic wounds. Their value in acute rheumatism and pneumonia, is not greater than that of older and simpler methods and in pneumonia, especially in children, their weight embarrasses respiration, and the presence of the clay mixture interferes with the necessary physical examinations. Their use is a revival of the old poultice method, for which better substitutes have been found.

BOOK REVIEWS

INTERNATIONAL CLINICS. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, U.S.A. Volumes III and IV, Fourteenth Series, 1904. J. B. Lippincott Company, Philadelphia, Pa.

In the issuance of these two volumes, much interesting and valuable material is placed, in convenient form, at the disposal of the profession. Syphilis is the leading topic of Volume III, and it is discussed exhaustively from a number of standpoints by eminent syphilographers.

Volume IV is more varied in its contents; expositions upon chronic polycythemia and treatment by radium being among the newer topics of interest. All of the contributions show careful preparation and are full of instructive thought.

Dr. Kelly has again demonstrated his ability, through the wise selection of theses, to keep the International Clinics upon their wonted high plane of scientific usefulness.

INTESTINAL CATARRH

J. Griffin, M.D., Shreveport, La., states: It would be gratifying to myself to say something on the subject of Glyco-Thymoline, a remedy of some years' standing, but in some measures new to me.

After it was brought to my notice the first use I put it to was in a case of intestinal catarrh, following an attack of measles. The patient was a young man about thirty years of age. Prior to the case falling into my hands lavage had been tried with him but it seems he grew worse instead of better. He had also been put upon the use of some of the empyemas with no better results. He presented himself to me as an anemic scarcely able to partake of any kind of food without suffering gastric pain with other gastric disturbances, accompanied with eructations of gas. He had been endeavoring to diet himself but was steadily growing worse.

Here was a case I thought for the administration of one of the preparations of papayata carica, and procuring one of its forms it was faithfully taken, accompanied with a careful dietetic regimen. But every dose seemed to give him pain in the epigastrium, so that he was compelled to abandon its use. I determined then to try what Glyco-Thymoline would do and accordingly I put him on the following:

Glyco-Thymoline ....oz. j
Boiled water qs. ad............oz. vj

M. Dose, one teaspoonful an hour before each meal and at bed time in a little water. I required him to constantly drink all the hot water he could digest and to take it no other way.

He was situated at a mill where boiling water was at all times accessible so that quite early in the morning he would drink from one to two and sometimes three tumblers of hot water at one time, followed by a dose of the medicine. Of course he was dieted, restraining himself in all the food which he found would disagree with him. He was not permitted under any circumstances to use meat of any kind. He was allowed to drink sweet or buttermilk at every meal. He would ring the changes upon the cereals, using grape-nuts, oatmeal, rice, etc. The progress was at first slow. The decrease in the amount of gas belched was noticed first and by degrees the pain which had always come on just after eating grew less and he began to take on flesh. Whenever his bottle of medicine was exhausted it was at once refilled and the improvement was marked. After six weeks' time circumstances prevented me from seeing the patient any more but I had assurance that his recovery was only a question of time. I had decided to accompany this treatment with small doses of sulpho-carbolate of sodium but was prevented from doing so.

M. J. Silverman, M.D., New York City, states: I want to tell you that Glyco-Thymoline is all right. Just recently I gave it a

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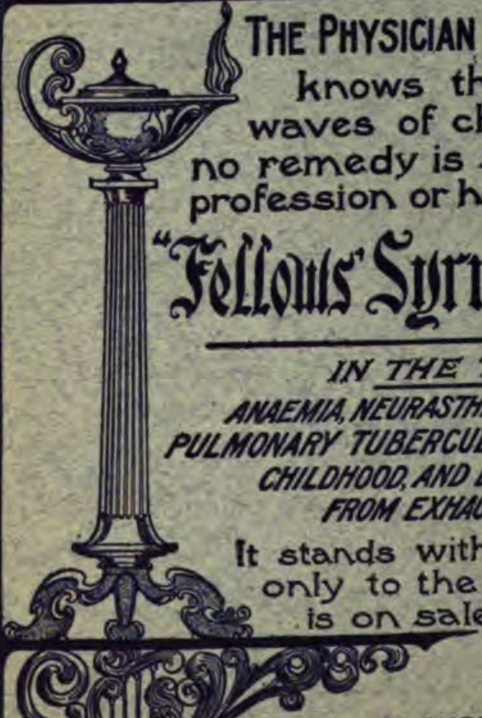

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